

**DIMENSIONAL AND INSTALLATION CHARACTERISTICS OF
MODULAR BUILDING PRODUCTS AND MATERIALS**

1



DOORS AND FRAMES



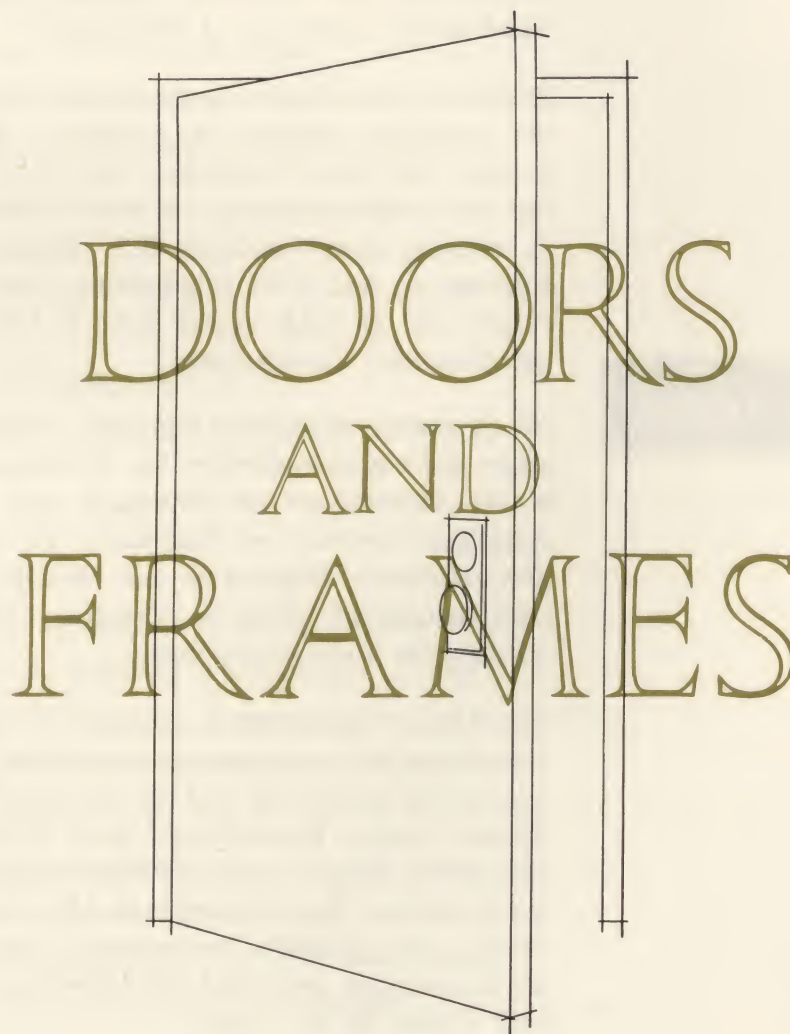
MODULAR BUILDING STANDARDS ASSOCIATION
2029 K Street Northwest, Washington 6, D.C.

Founded by: THE AMERICAN INSTITUTE OF ARCHITECTS
ASSOCIATED GENERAL CONTRACTORS OF AMERICA
NATIONAL ASSOCIATION OF HOME BUILDERS
THE PRODUCERS' COUNCIL, INCORPORATED



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MODULAR BUILDING PRODUCTS AND MATERIALS**

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About the Author

BYRON C. BLOOMFIELD, AIA, prepared this study on *DOORS & FRAMES* while on academic leave from the Pennsylvania State University. At the time of compiling the study he was an Associate Professor of Architecture involved in architectural research. He has recently become Director of the University Facilities Research Center located at the University of Wisconsin.

Professor Bloomfield is a registered architect, member of the American Institute of Architects, Building Research Institute and the Construction Specifications Institute and has had varied experience in most phases of practice and in teaching since obtaining B.S. degrees in Architectural Engineering and Civil Engineering from Iowa State University and an S.M. degree from M.I.T. in Building Engineering and Construction.

He prepared numerous technical studies for architects while serving as Secretary for Professional Development in the Department of Education and Research of the American Institute of Architects. He later became the first Executive Director of the Modular Building Standards Association which he continues to serve in the same capacity on a consulting basis.

The Author's gratitude is expressed to the following individuals for their assistance in connection with the preparation of this manuscript and the accompanying illustrations: Robert Napier, Pennsylvania State University, for assistance in the initial drafting of illustrations; Mr. Geza Schay for artwork of final illustrations; Mrs. Jean Edes and Mrs. Frieda Arth of MBSA for secretarial services in compiling the manuscript; and Judd and Detweiler, Inc., printers, for final format of the study.

A special note of appreciation is extended to the following persons for their personal and individual assistance toward identifying contents needed in the study: Frank S. Fitzgerald; Ed C. Hoeppner and Werner M. Leeser.

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CONTENTS

Text

General Information	5
Exterior Swing Type Doors in Metal Frames	9
Exterior Swing Type Doors in Wood Frames	13
Exterior Sliding Glass Doors	17
Interior Swing Type Doors in Metal Frames	22
Interior Swing Type Doors in Wood Frames	27
Sliding and Folding Interior Doors of Wood or Metal	31
About Doors in General	32

Tables

Standard Widths for Sliding Glass Doors	17
Standard Sizes for Steel Doors and Frames	32

Figures

Figure 1—Height Characteristics of Modular Sliding Glass Doors	17
Figure 2—Width Characteristics of Modular Sliding Glass Doors	18
Figure 3—Height Characteristics of Interior Folding and Sliding Doors	31
Figure 4—MBSA Modular Product Designation Symbol	32
Figure 5—Dimensional Characteristics of 7'-0" and 7'-2" Steel Doors and Frames	33
Figure 6—Dimensional Characteristics of 6'-8" Steel Doors and Frames	34
Figure 7—American Standard for Hardware Location	35
Figure 8—Working Drawing Door Details for Bank Project	36
Figure 9—Door Schedule and Typical Plan Notations for Bank Project	37

Product Information Pages

Overly Manufacturing Company	38-39
The Steelcraft Manufacturing Company, Inc.	40-41
Peachtree Doors, Inc.	42-43
Desco Metals Company	44-45
Amweld Building Products	46-47

DETAIL DESIGNATION CODE

First Figure

- (1) Exterior
- (2) Interior

Second Figure

- (1) Swing type
- (2) Sliding type
- (3) Folding type (interior only)

Third Figure

- (1) Metal frame
- (2) Wood frame

Fourth Figure

Exterior—type of construction

- (1) Wood stud with wood siding
- (2) Wood frame with stucco
- (3) Masonry veneer
- (4) Solid masonry
- (5) Cavity wall masonry
- (6) Concrete block stucco (CBS)

Interior—type of construction

- (1) Masonry partitions (tile, block, brick)
- (2) Steel stud partitions
- (3) Wood stud partitions
- (4) Solid plaster or laminated gypsum board partitions

(e.g.—Illustration number **1-1-1-3** refers to an exterior swing door in metal frame in masonry veneer construction. Lettered suffixes refer to options provided by varying wall thicknesses or by alternate methods of installation.)

Dimensional and Installation Characteristics of

DOORS AND FRAMES

About This Publication: This is the first issue of a planned series of 24 studies to be prepared expressly for assistance to draftsmen and detailers of building projects. The suggested installation details and size ranges for selection and use in actual projects are the recommendations of the author based upon extensive personal investigations of sound construction practices used by the industry. The Modular Building Standards Association accepts no responsibility for inclusiveness or accuracy of statements and the accompanying illustrative details but acts only in the capacity of transmitting the results of the study to possible users of such information.

Forthcoming Studies: The proposed series of publications to be distributed via this means is to include information relative to the dimensional and installation characteristics of the following types of building products and materials:

- DOORS & FRAMES (hinged, sliding & folding . . . interior & exterior)
- WINDOWS (single & strip)
- DOOR & WINDOW COMBINATION ASSEMBLIES
- CURTAIN WALLS (panel walls & openings)
- PANELIZED BUILDING SYSTEMS (complete systems . . . including framing)
- INTERIOR PARTITIONS
- MASONRY (concrete & clay units . . . brick, tile, block, etc.)
- FLOOR & ROOF PANELS & STRUCTURAL FRAMING (steel, wood & concrete)
- CONCRETE FORMWORK
- COMBINED CEILINGS (lighting, acoustic tile, etc.)
- FLOOR FINISH MATERIALS (flexible & rigid)
- GLASS BLOCK & SKYLIGHTS
- GLASS & MIRRORS (sheet, drawer, plate & insulating)
- KITCHEN & LAUNDRY APPLIANCES (including cabinets)
- PLUMBING FIXTURES & ACCESSORIES (including sprinklers)
- PREFABRICATED STAIRWAYS, ACCESS PANELS & MEDICINE CABINETS
- INSULATION (rigid & flexible)
- WALL FINISH MATERIALS (prefinished wood, metal & plastic)
- INTERIOR & EXTERIOR SHEET BUILDING MATERIALS (plywood, gypsum board, building board, exterior siding, etc.)
- ROOFING (metal, plastic, clay, cementitious & bituminous)
- MECHANICAL EQUIPMENT (heating & air conditioning units, grills & ductwork including unit air conditioners)
- BUILDING FURNISHINGS (office furniture, storage units, laboratory equipment, etc.)
- MISCELLANEOUS BUILDING ITEMS (sills, stools, gutters & downspouts, folding stairs, ventilating equipment, grating, chalkboards, etc.)
- OPEN

Distribution of These Booklets: The following classifications of persons in the building industry will receive all issues of this publication without cost, and automatically: All members of the American Institute of Architects; all builder-members of the National Association of Home Builders; all building construction members of the Associated General Contractors of America; members of the Producer's Council, Inc., and all members of the Construction Specifications Institute. Members of additional organizations will also be included in the distribution of those studies pertaining to their areas of interest.

About the Contents: This issue contains graphic illustrations of typical door and frame installations in common types of wall construction. Only the most frequently occurring types of doors and constructions have been shown. Reference details have been restricted to three types of materials used in doors and frames: STEEL, WOOD and ALUMINUM. The categories are further classified by EXTERIOR and INTERIOR applications and whether they are SWING or SLIDING installations. A further classification of FOLDING door installations is included under interior door details.

About the Terminology: The terms of *stock*, *standard* and *custom* are used throughout this study in relationship to size or configuration of sections.

Stock is intended to mean finished items that manufacturers produce and stock in their warehouses prior to receiving orders for the items.

Standard applies to items for which jigs or other manufacturing forms are kept on hand by the manufacturer between orders for the particular standard size. Upon receipt of order, the standard units are then produced and shipped to the customer.

Custom sizes apply to the manufacturer of assemblies in response to the specific dimensional requirements of a particular customer. Fabrication jigs are prepared or are adjusted to the size requested before production is commenced.

Differentials in initial or replacement costs of items manufactured under the three sets of conditions identified above depend upon the complexity of the unit, its distribution method, source of manufacture and changing technological and economic conditions.

About the Details: Upon inspection you will note that all details are expressed with conventional modular drafting. While this system of dimensioning has rapidly grown in use among architectural offices in the United States, it is not an absolute requirement for effective use of the typical details shown in this study. The

principles inherent in the sizing of modular products to permit simplified installation are, however, expressed most readily by the modular dimensioning system which can be transferred directly onto the working drawings of building projects. Such details can be further related to the working drawing plans and sections, resulting in efficiencies in drafting and dimensioning when Modular Measure is used throughout.

Sources of additional information on the full use of modular dimensioning may be obtained by writing to the Modular Building Standards Association.

About Modular Sizes: The tables of size ranges illustrated in this text are predicated on modular sizes. In general, dimensions between "grid openings" are always selected in multiples of 4". This four-inch increment was formally adopted in 1945 as the *American Standard Basic Module* for all building products and materials. The American Standards Association procedures reflected consensus of all principal elements of the building industry. Since that time the number of modular sized counter-parts to traditional items have constantly increased to the point that today it is now possible to use modular sizes, throughout, wherever stock or standard items are called for.

About Custom Sizes: It is not within the province of this publication to suggest that custom sizes (fabricated specifically for a particular project) may not possess certain virtues in appropriate instances. However, it is possible to point out that whenever stock or standard production products are to be used, every incentive is present to use modular sizes exclusively, rather than those traditional stock or standard sizes which do not normally relate to the dimensional characteristics of adjacent materials.

About the New Door Size: Traditionally, both steel and wood doors became stock in 7'-0" heights. Adding the standard steel door frame head depth of 2" to this dimension produces a 7'-2" height above the finished floor.

With conventional modular masonry construction (block, tile, brick, etc.) it is not possible to maintain modular positions for the wall coursings at *both* the floor *and* the door head. In recent months a new height of steel door has become available from stock and standard production. The height of the door leaf is now 7'-2". (7'-2" wood doors have been available for some time and are frequently mounted in steel frames.) Addition of the 2" of frame at the head now gives the entire assembly a 7'-4" over-all height which is fully compatible with modular wall materials. Details in this study are predicated on this new door height. Such units are readily available from major suppliers and are expected to eventually replace the 7'-0" height as the stock or standard production item. The 7'-4" frame height permits detailing as a butt-frame installation with the frame either filled, or left hollow, depending upon the needs of the particular installation.

Traditional 6'-8" door heights also accommodate modular construction *if detailed as surround* frames. Such a detail is shown in Figure No. 5. Coursing is disturbed, however, if this height door is used in the conventional butt-frame manner. In some instances the 6'-8" door height is considered too low if an exposed overhead closer is installed. In other instances the height may be considered too low for the frequent giants among the current crop of young adults in our schools. The *minimum* door height now permissible in new schools in Texas is reported to be seven feet.

As parenthetically mentioned above, wood doors are available for 7'-2" openings. The additional cost of the two inches in height is an approximate extrapolation of the pro-rata unit cost based on 7'-0". This slight increment increase can be usually considered as more than offset by the reduction of 2" of wall material cost plus a more significant savings in installation cost.

Eight-Foot Door Heights: The installation details shown in the accompanying details are largely predicated on 7'-4" frame heights. De-

tails will, for the most part, be identical for 8'-0" or 7'-4" heights. At the greater height one must consider the likelihood of the item being custom fabricated and the possibility of limited availability if the door is to be a "label" fire door. An 8'-0" flush mounted door without a frame has been developed for residential construction but has been omitted from this study along with other types such as accordion doors and various specialty items.

Sliding Glass Doors: All details shown for sliding doors are in the same form as used by firms employing modular principles throughout. The axiomatic premise that the finished floor grid is the elevation from which all vertical elements are measured makes it mandatory to recess the sill into a setting bed *below* the finished floor grid. The height of the rough opening above the finished floor grid must be a modular increment (multiple of 4") to accommodate modular materials adjacent to the door and passing above the door head. An over-all height for this dimension possesses the greatest number of advantages when established at 7'-4". At this height it is then possible to align sliding glass door heads with other types of interior doors and with lintels of adjacent swing type doors and conventional windows. The 7'-4" height also permits needed space in which to install structural lintels for buildings with 8'-0" ceilings. If the ceilings are higher and the lintel conditions can otherwise be solved, an 8'-0" height above the finished floor can be useful for many purposes.

The sliding glass door is a relatively wide unit, as building products go. It might be well to point out to manufacturers that a modular width 4" *less* than a normal structural module can facilitate structural column placement.

Manufacturers might find, for instance, that a 7'-8" modular width should be carried along with, or in place of, their standard 8'-0" stock item. By carefully checking the need for various sizes it is then possible to determine which increments of 4" width should be offered as stock or standard production items.

Sliding glass doors are presently manufactured as assemblies involving wood, steel or aluminum with some as combinations of these materials.

The sections shown in the accompanying details are predicated on a common type of aluminum frame sliding glass door. Inter-changeability of products and materials of manufacture may normally be accommodated by reference to the established *grid-openings* for horizontal as well as vertical dimensions of the details.

Compared to swinging doors, the sliding glass door industry is relatively young and has not yet settled down into production of industry-wide stock sizes. At the present time the ordering of an aluminum sliding door in a special size affects delivery time more than price. Since such doors are usually installed toward the latter part of the construction schedule, no particular difficulties may be expected by having ordered a special size. On this basis, it is possible to detail and immediately use the modular sizes noted in this study. As the producers of sliding glass doors evolve toward more standardized production of stock and standard sizes, we may be certain that such selections will be from within the modular size ranges.

About the Installation Details: One thing about the details which will be quickly noticed by an experienced architect is that the door frames do not quite reach the DOOR HEAD GRID. For the purposes of illustration, a dimension of 3/16" was used throughout. This small increment serves two very useful purposes.

It is caused, primarily, by the need for space to insert a steel lintel into the masonry joint over the door. To keep door sizes consistent, it is used throughout regardless of the type of lintel or wall construction used.

Simultaneously, the structural floor surface is normally placed a fraction of an inch *below* the finished floor, or *floor grid*. This dimension varies from 1/8" to 3/16" to 1/4", depending upon the drafting conventions of the architects'

office. If 3/16" is adopted as standard, at both the door head and the floor grid, standard and stock modular heights produced by manufacturers (See Figures 5 and 6) are dimensionally correct for modular installations.

A dimension of 1/4" can be used equally well, as evidenced in Figure 8. It is important for detailers to adopt one figure and stick with it, if only for the sake of dimensional consistency. In practice the 1/16" or 1/8" cannot be found, as the mason will bring the coursing out even with the top of the frame.

Hardware: Recently an AMERICAN STANDARD for hardware preparation was adopted through American Standards Association procedures. The resultant standard includes standard strike location as shown in Figures 5 and 6 of this study. Standard hardware location deserves consideration because of the potential of faster delivery time with fewer unforeseen delays, interchangeability of brands of hardware along with potential reductions in total installed costs.

Specifications: Currently, both the American Institute of Architects and the Construction Specifications Institute are working on "Guide" or "Outline" specifications for doors and hardware. These references should be valuable additions to the resources of specification writers when coupled with information presently available.

Modular Dimensioned Working Drawing Door Details: All illustrations of door details shown in this reference publication have been prepared in such manner as to permit use on modular dimensioned or conventionally dimensioned project working drawings. However, with the use of modular dimensioning, further simplicities can be effected. To illustrate this point, this study is terminated with door details reproduced from a set of modular working drawings. The accompanying door schedule and typical plan drawing notations are included as Figures 8 and 9.

Exterior-Swing Type Doors-Metal Frames

SECTION 1-1-1

THE ACCOMPANYING DETAILS are for the purpose of illustrating general installation considerations and inherent dimensional characteristics of metal frames in exterior applications.

The type of construction and interior finishes employed on a given project will dictate the solutions to trim variables involved.

All details shown are for 7'-4" grid-opening heights. Details for other grid opening heights in multiples of 8" remain exactly the same but involve the important consideration of availability of stock or standard doors of the material desired. Door leaf heights above 7'-2" require

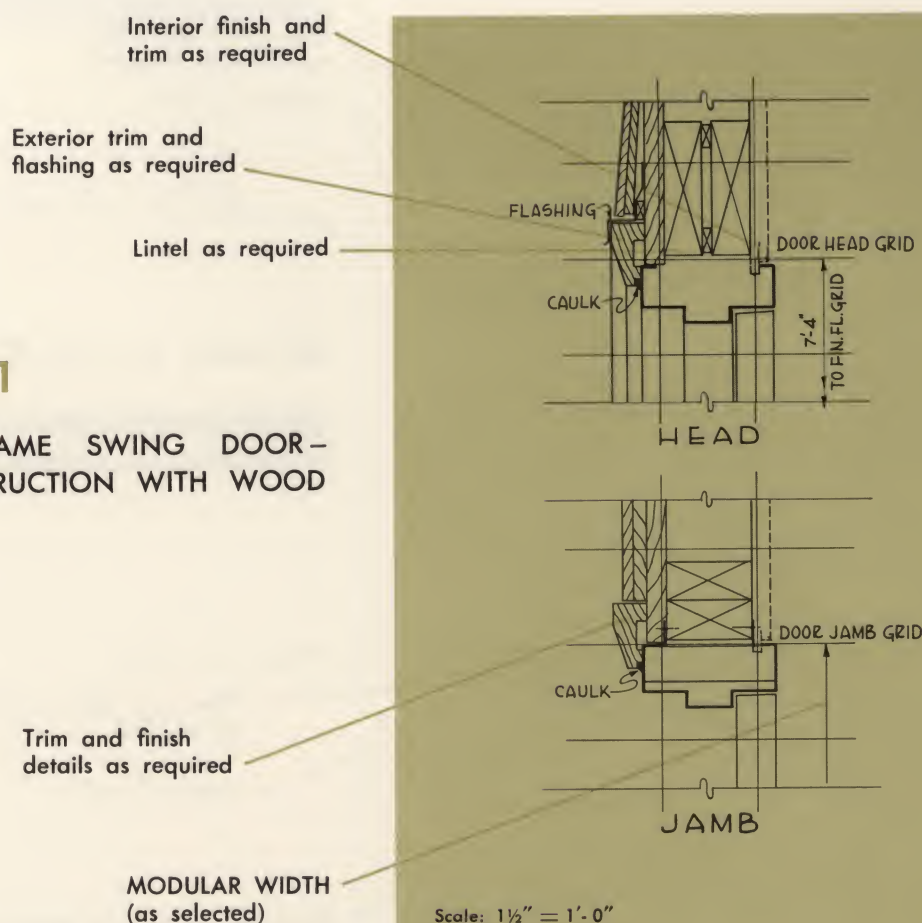
special investigation as to availability when label doors are needed.

Door heights of 6'-8" with 2" metal frames can be detailed into modular construction; provided that they are used as *surround frames*. (This satisfies the modular criteria of being a multiple of 4" from 7'-4" and accommodates masonry wall materials of 8" coursings or $3c=8"$.) The 6'-8" height will not, however, permit uniform lintel heights if both butt-frame and surround frame details are used on the same job.

The accompanying details show a 2" steel frame for illustration purposes. While this is the

DETAIL 1-1-1-1

EXTERIOR-METAL FRAME SWING DOOR-WOOD STUD CONSTRUCTION WITH WOOD SIDING



most common size, slightly narrower units can be used without affecting the details or adjusting door leaf sizes.

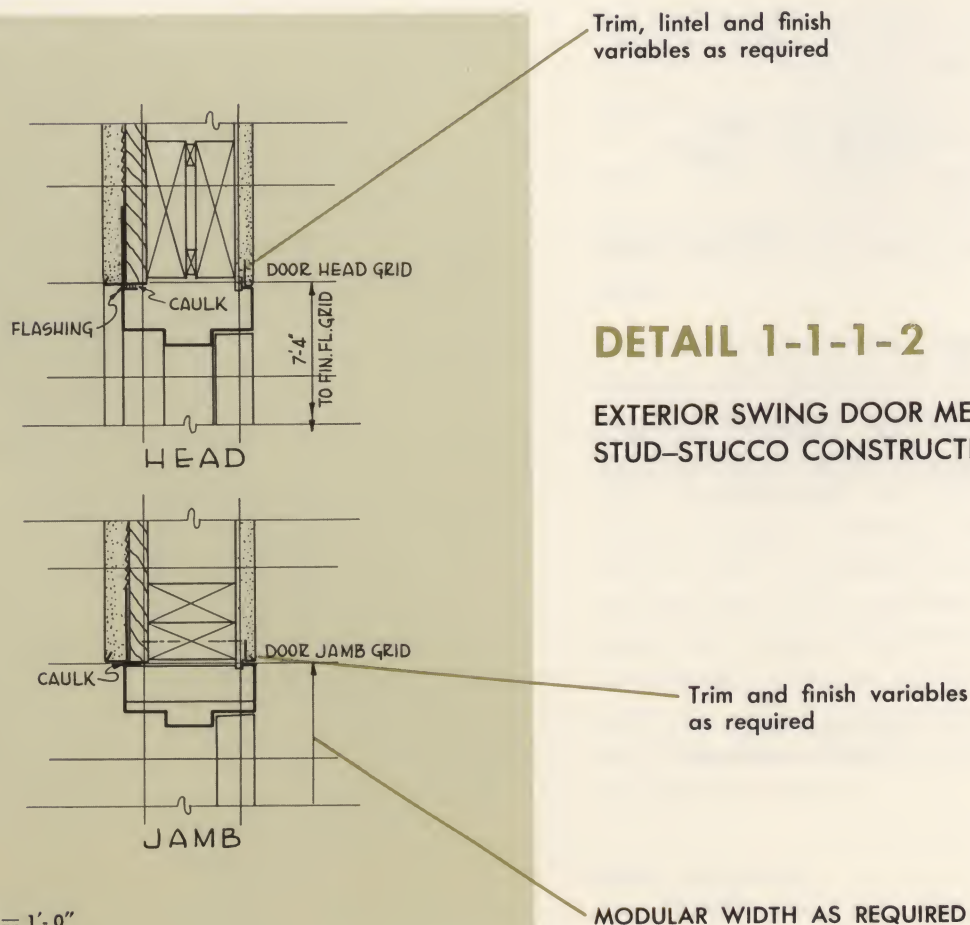
Various depths of steel frames are available from producers. The table on page 17 shows the most commonly available sizes as well as the most frequent widths of stock and standard steel doors. In most any type of construction illustrated, alternatives are available to the detailer in terms of configuration of the buck and its depth. The one item that remains consistent, in all cases, is the door frame grid opening in both height and width.

The types of finishes illustrated are also of com-

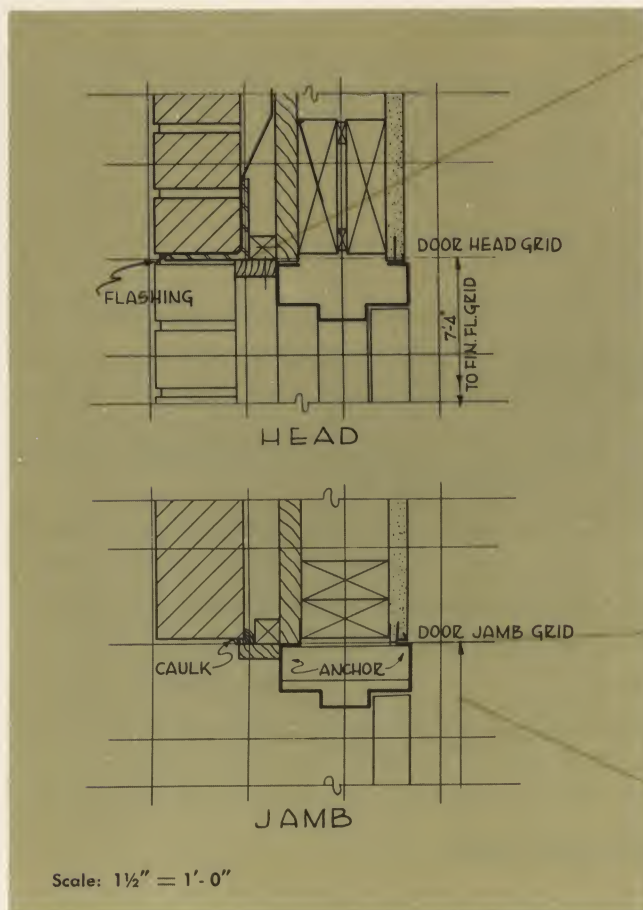
mon types frequently employed in construction.

The details can be easily modified to incorporate the specific materials and finishes required for a given project.

Manufacturer literature should be contacted for the strength characteristics of frames. In many instances, spans are short enough, with small enough dead load above, to obviate the need for a separate structural lintel. For spans requiring light lintel support, a flat-plate steel lintel is often employed. Greater spans and loads call for reinforced concrete, reinforced masonry or structural angles.



Scale: 1½" = 1'-0"



DETAIL 1-1-1-3

EXTERIOR SWING DOOR METAL FRAME –
WOOD STUD AND BRICK VENEER
CONSTRUCTION

Trim and finish
details as required

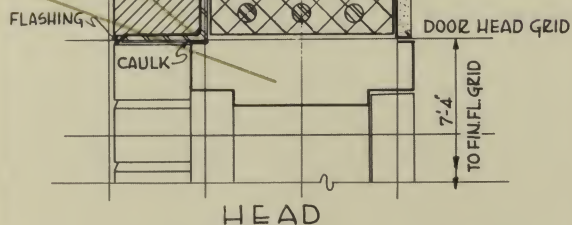
MODULAR WIDTH AS REQUIRED
(from table of production sizes)

DETAIL 1-1-1-4

EXTERIOR SWING DOOR METAL FRAME – SOLID
MASONRY CONSTRUCTION

Lintels as required

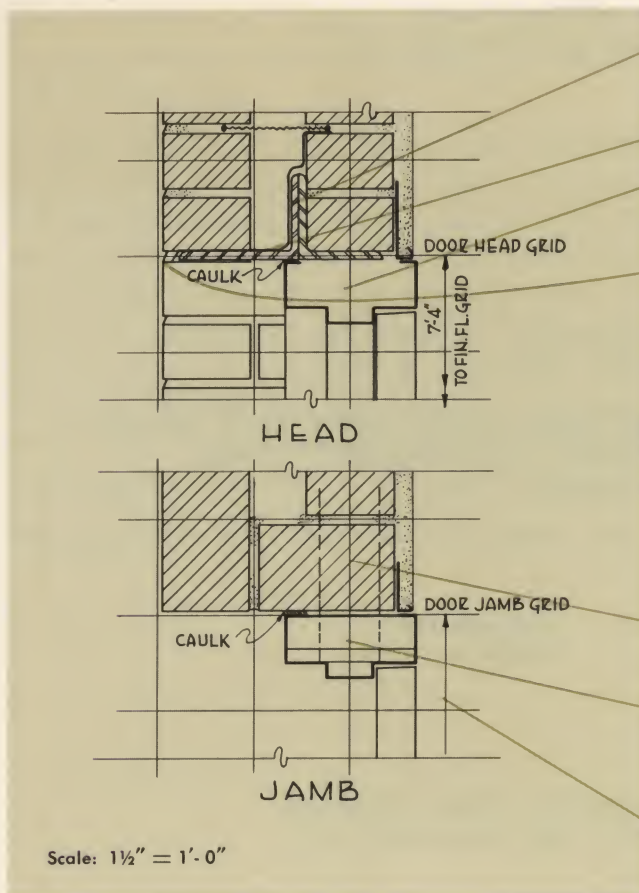
Grout frame (optional)



Anchors as required

Grout (optional)

MODULAR WIDTH AS REQUIRED



Lintels as required

Flashing where needed

Grout frame (optional)

Weep holes if required

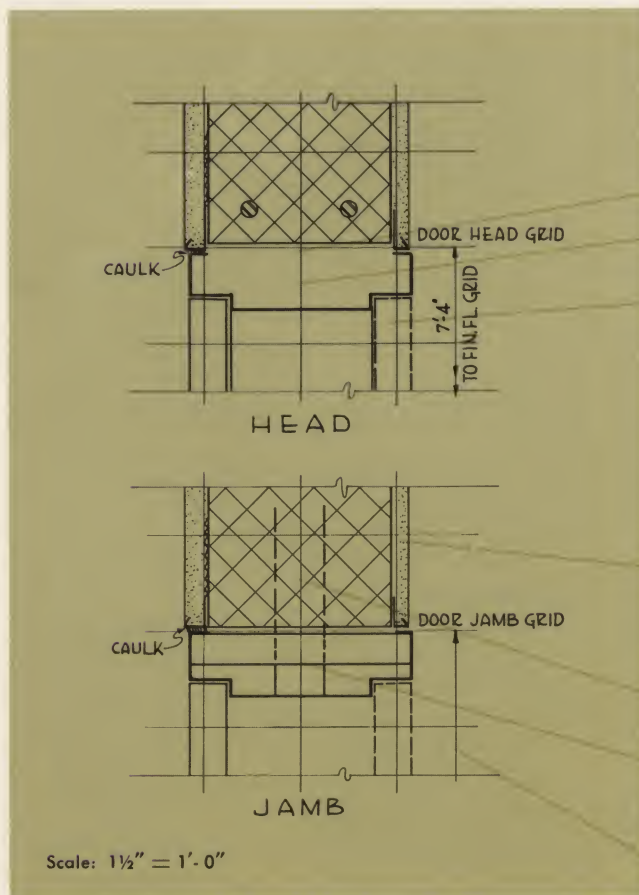
DETAIL 1-1-1-5

EXTERIOR SWING DOOR METAL FRAME – CAVITY WALL CONSTRUCTION

Anchors as required

Grout frame (optional)

MODULAR WIDTH



NOTE: Narrower frame may be used either centered or on one face to accommodate 180° door swing

Lintel type as required

Grout (optional)

Alternate door placement

DETAIL 1-1-1-6

EXTERIOR SWING DOOR METAL FRAME – CBS CONSTRUCTION

Alternate conditions of metal lath – stucco and direct plaster are shown. Exposed block is common

Anchors as required

Grout (optional)

MODULAR WIDTH AS SELECTED

Exterior-Swing Type Doors-Wood Frames

SECTION 1-1-2

THE DETAILS USED AS ILLUSTRATIONS in this section are also to be used only as dimensional guides to which the requirements of a particular job—finish, trim, lintel and other variables—are to be applied.

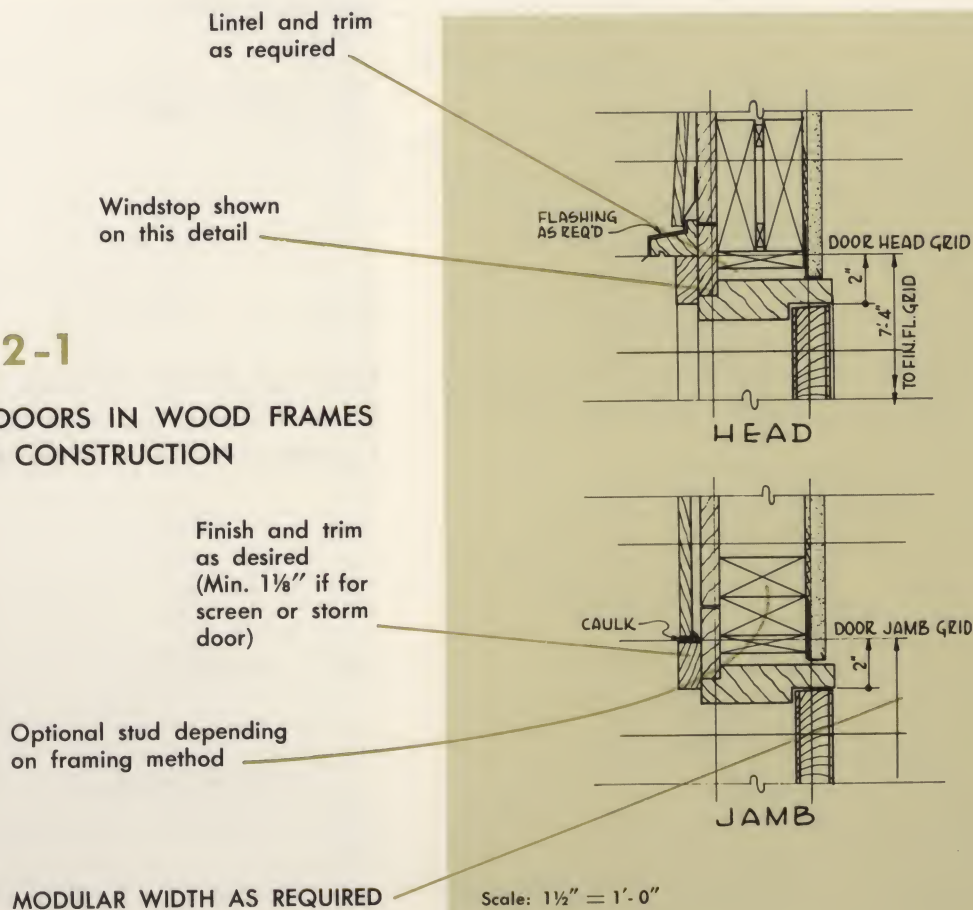
One of the first unusual items noticed on the details is the use of a 1" continuous blocking strip around the grid openings. In some instances the blocking is required for anchorage such as in the masonry installations. In other cases the detailer may find it desirable to omit the blocking and move lintels downward and wall studs inward. While this situation may perhaps be more the

norm than the exception at the time of preparing this guide, the detailer should be cognizant of what the 1" blocking strip can do.

1. It permits all lintel heights to remain the same throughout the building, whether it be for windows or different types of doors.
2. 7'-2" doors can be used throughout with heads aligning with sliding glass door units.
3. Masonry coursing, if involved, is consistent for both conditions. This factor is especially critical in brick veneer construction.
4. It obviates the need for exercising a less desirable option to maintain consistent lintel heights which is to use a one inch higher and 2 inch wider door on such openings.

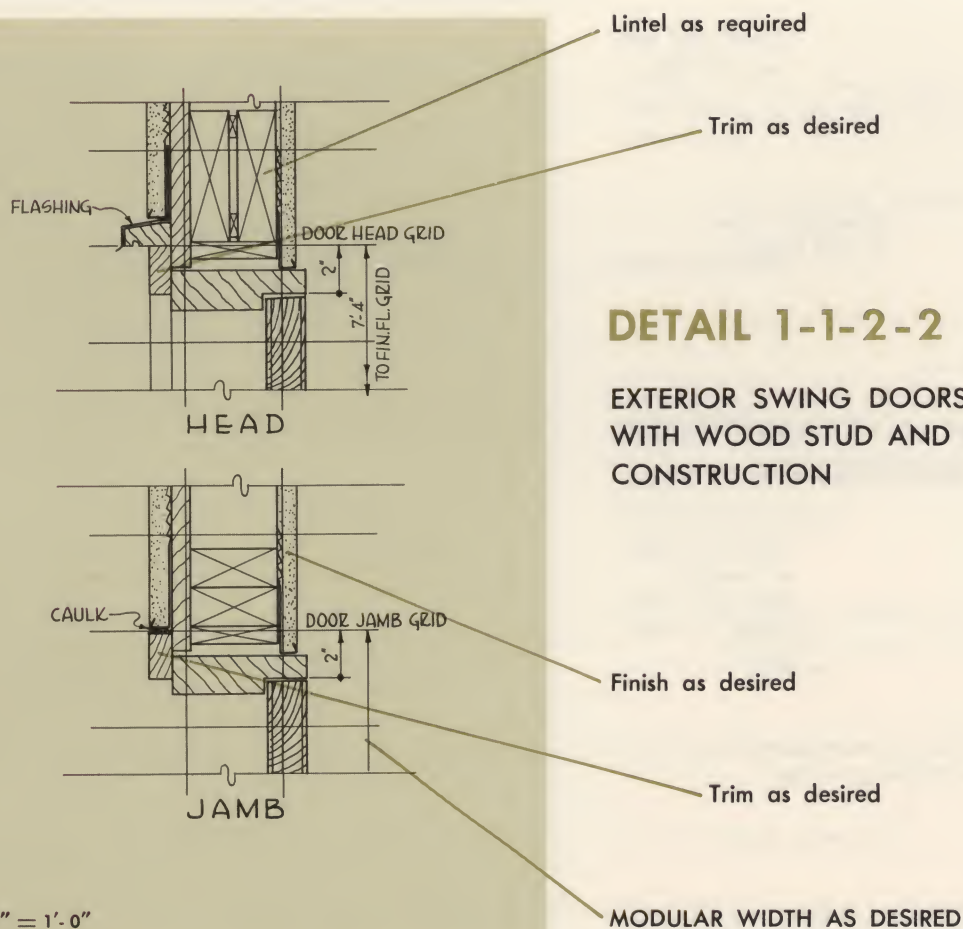
DETAIL 1-1-2-1

EXTERIOR SWING DOORS IN WOOD FRAMES WITH WOOD STUD CONSTRUCTION



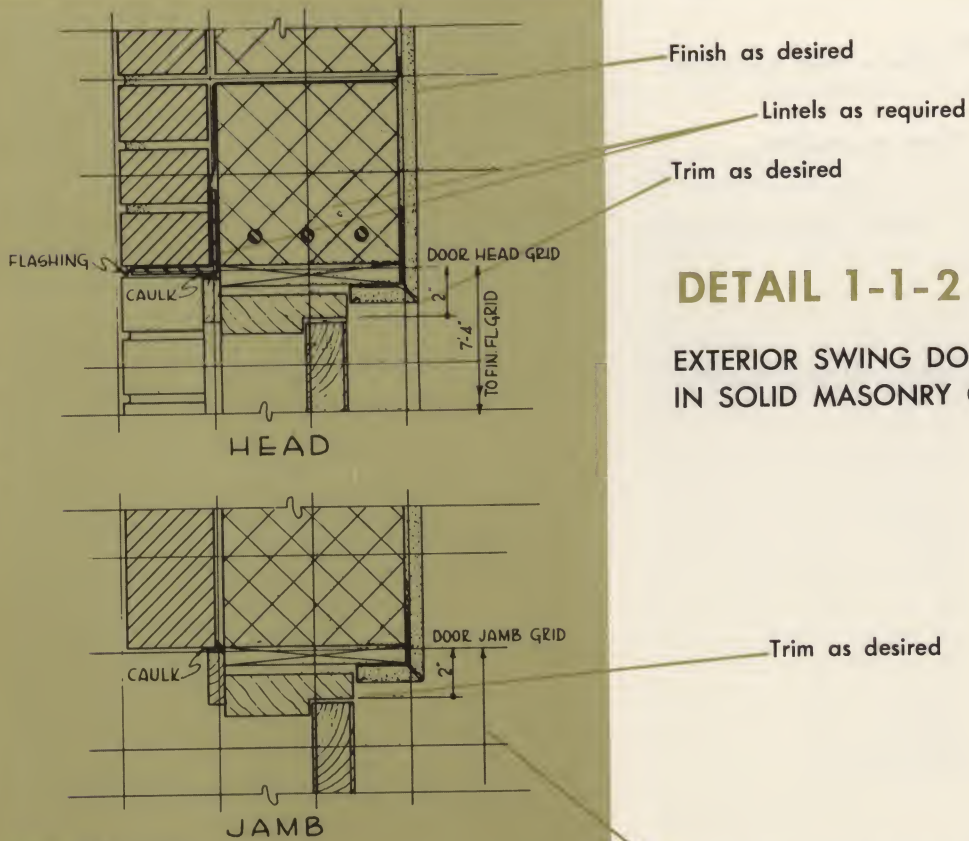
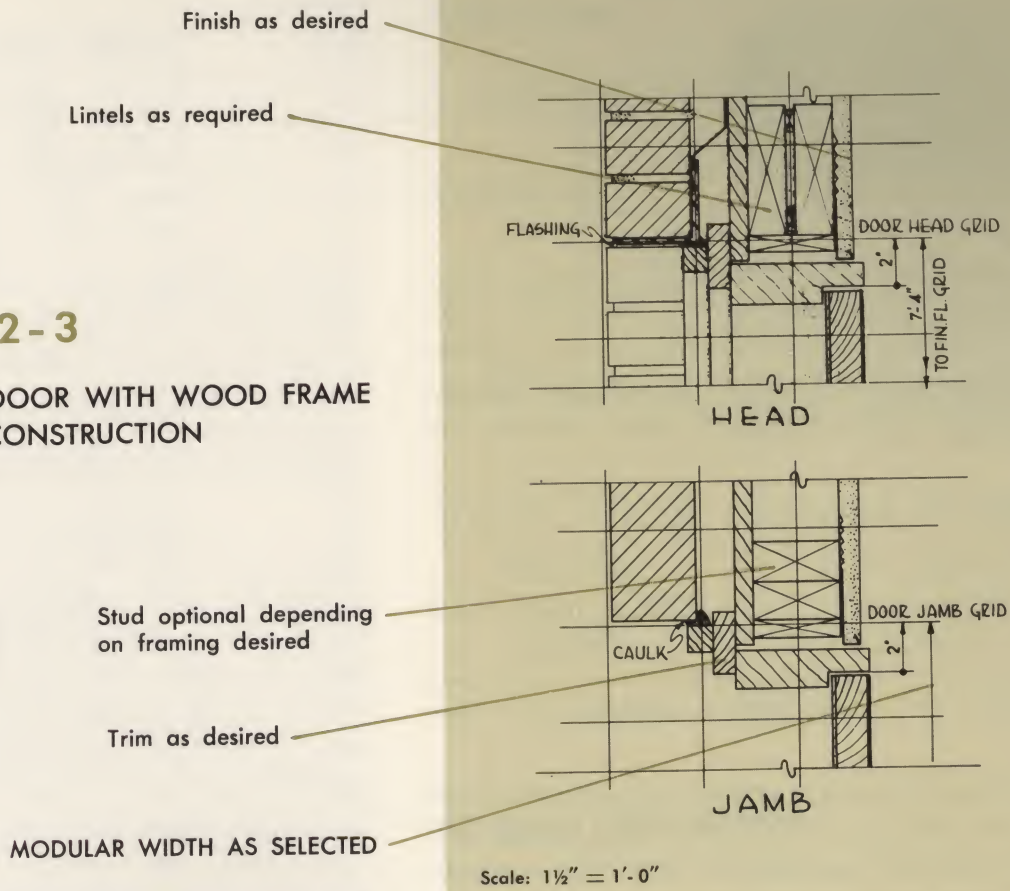
Structural lintels have been shown on all details which will apply in many typical situations. If the lintel need not be structural, conventional header framing can be used.

The details will need to be changed only slightly (if at all) to accommodate screen and combination doors.



DETAIL 1-1-2-3

EXTERIOR SWING DOOR WITH WOOD FRAME
IN BRICK VENEER CONSTRUCTION



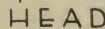
DETAIL 1-1-2-4

EXTERIOR SWING DOOR WITH WOOD FRAME
IN SOLID MASONRY CONSTRUCTION

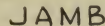
Finish as desired

Lintels as required

Trim as desired



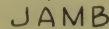
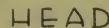
EXTERIOR SWING DOOR WITH WOOD FRAME IN CAVITY WALL CONSTRUCTION



Scale: $1\frac{1}{2}" = 1'-0"$

Lintel as required

EXTERIOR SWING DOOR WITH WOOD FRAME IN CBS CONSTRUCTION



Scale: $1\frac{1}{2}'' = 1'-0''$

Exterior—Sliding Glass Doors

SECTION 1-2

AT THE TIME OF PREPARING this text, heights of stock and standard glass sliding doors varied considerably from manufacturer to manufacturer. Yet, any of the various sections and sliding assemblies can be contained within the grid-to-grid characteristics of modular construction.

The accompanying diagram (Figure 1) has been developed on the basis of a $\frac{1}{4}$ " head clearance (typically shimmed firm) and a $\frac{3}{4}$ " sill recess. Three modular heights of 6'-8", 7'-4" and 8'-0" are suggested. The "Door Dimensions" reflected are actual dimensions of a theoretical typical assembly when the above clearance and recess dimensions are used. Doors with section characteristics requiring other than $\frac{1}{4}$ " head clearances and $\frac{3}{4}$ " sill recesses are in production but can be fabricated to readily accommodate the selected modular height dimension. The manufacturer then adjusts his own sections, clearances and recesses to be compatible with 1" glass increments to yield the grid-to-grid installation dimension desired.

Here again, it is expected that the 7'-4" door will possess the greatest dimensional advantage of the three sizes by virtue of its compatibility with the lintels over swing doors and with window heads located elsewhere in the building. Modular masonry coursing is accommodated equally well in all three heights.

Sliding glass door assemblies in 1, 2, 3, 4 and 6 track systems can all adhere to the grid-opening dimensions of the three modular heights of 6'-8", 7'-4" and 8'-0".

Dimensional considerations similar to those employed by manufacturers in establishing modular heights are also applied in developing modular widths for stock and standard production. Because of the large number of possibilities for modular widths (any 4" increment) production size ranges are normally limited to those

sizes possessing the greatest frequency of application. Stock production widths can be obtained directly from manufacturer literature, but at the present time the most typical types and widths are identified in the following table:

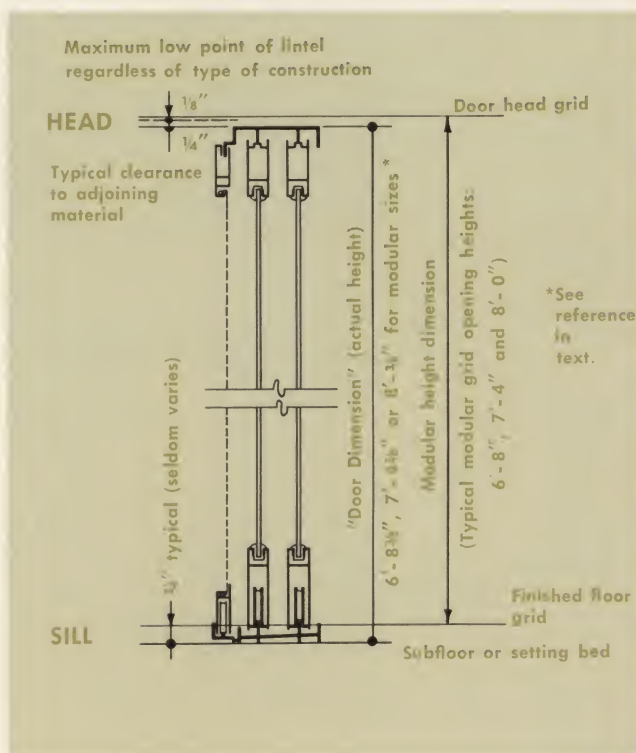
DOOR TYPE	STOCK WIDTH
OX & XO	6', 8', 10' & 12'
OXO XO & OOX	9', 12' & 15'
OXXO	12' & 16'

Note: "X" designates a sliding panel; "O" stationary

Illustrations in this portion of the text use aluminum sliding glass doors for the purpose of convenience only. Both steel sliding glass doors and

FIGURE 1

Height Characteristics of Modular Sliding Glass Doors



wood sliding glass doors are in production. Manufacturers using all three types of basic materials must adhere to the same dimensional considerations of modular height dimensions.

Door head details as shown in the illustrations are identical for 6'-8", 7'-4" and 8'-0" with regard to horizontal grid lines. Lintel conditions may vary depending upon the materials being

detailed but the opening should remain within the limits indicated.

For illustrative purposes, the sliding glass door units detailed contemplate resting on the sub-floor with $\frac{1}{4}$ " clearance on the other three sides. The "Door Dimension" may vary from manufacturer to manufacturer but the dimensions of the actual opening should not change.

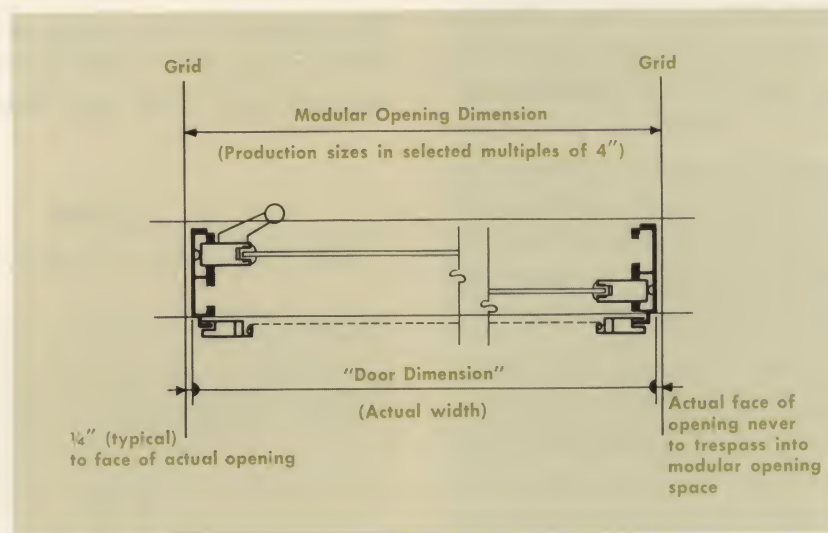


FIGURE 2

Width Characteristics of Modular Sliding Glass Doors

- Lintel as required (steel plate reinforcement shown)
- Finish and trim as desired
- Continuous blocking to $\frac{1}{8}$ " below grid line depending on lintel used (by general contractor)

DETAIL 1-2-1-1

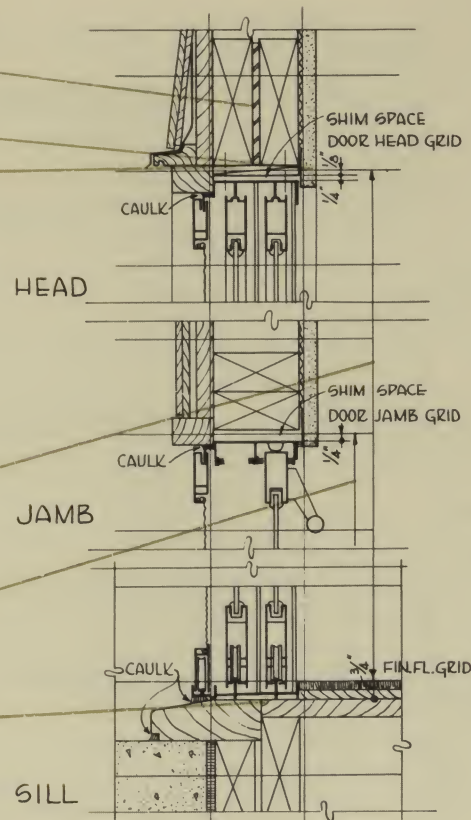
EXTERIOR SLIDING DOORS OF METAL IN WOOD FRAME CONSTRUCTION

MODULAR HEIGHT DIMENSION
(as selected)

MODULAR WIDTH DIMENSION

Floor finish, sill and landing as required

NOTE: Optional sliding door unit for this type of construction could be a unit with integral fin nailed on from outside



Scale: $1\frac{1}{2}" = 1'-0"$

- Finish and trim as desired
- Lintel as required (plywood spacer shown)
- Continuous blocking to $\frac{1}{8}$ " below grid (by general contractor)

DETAIL 1-2-1-2

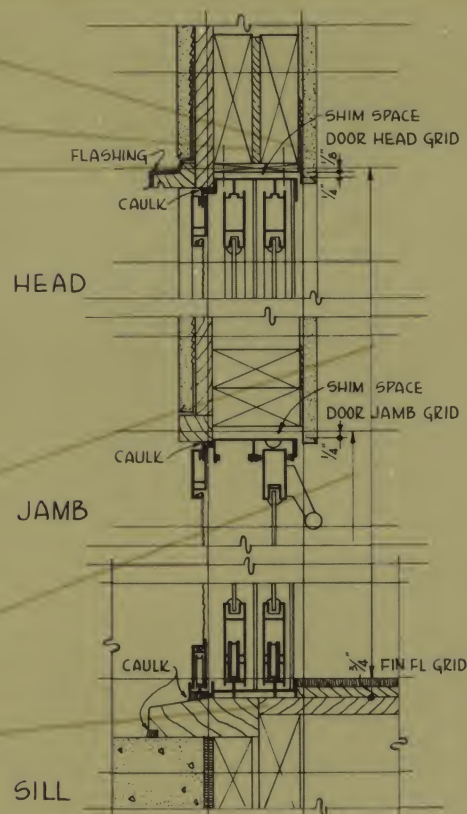
EXTERIOR SLIDING DOOR OF METAL IN WOOD FRAME and STUCCO CONSTRUCTION

MODULAR HEIGHT DIMENSION
(as selected)

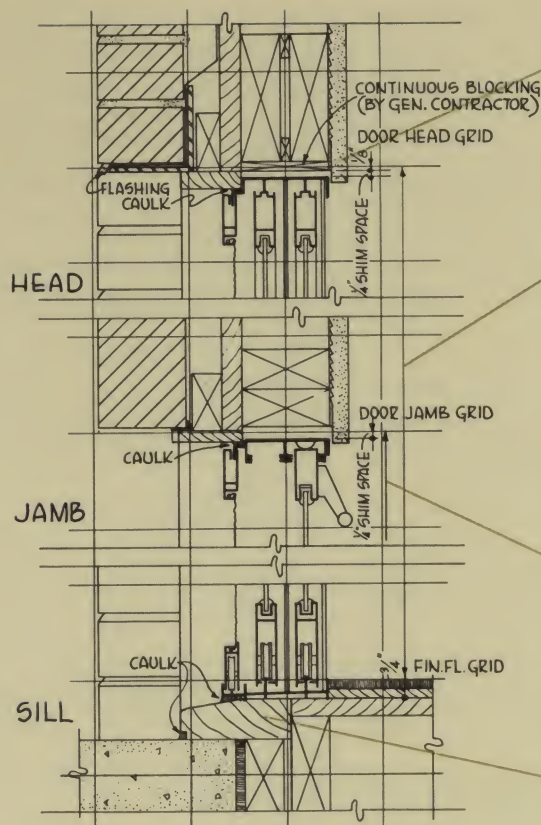
MODULAR WIDTH DIMENSION

Floor, sill and landing as required

NOTE: Option on DETAIL 1-2-1-1 applies



Scale: $1\frac{1}{2}" = 1'-0"$



Interior finish, lintels
and trim as required

MODULAR HEIGHT DIMENSION
(as selected)

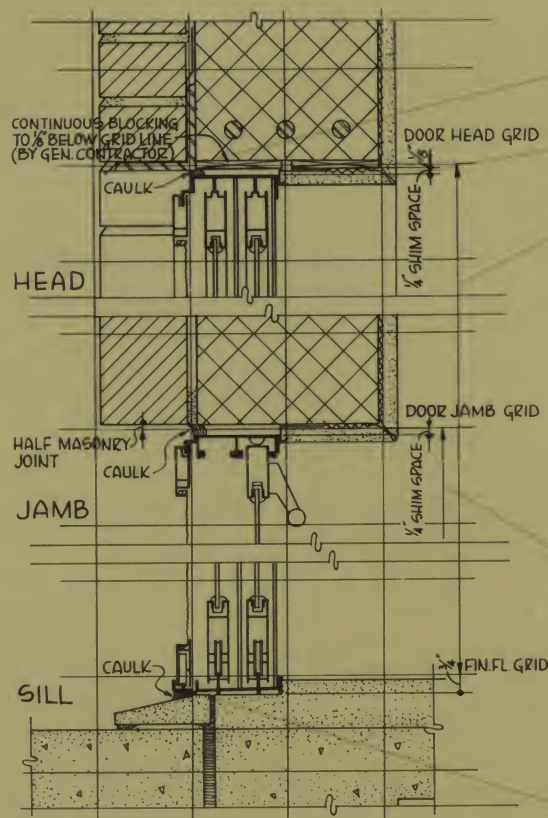
DETAIL 1-2-1-3

EXTERIOR SLIDING DOOR OF METAL IN
MASONRY VENEER CONSTRUCTION

MODULAR WIDTH DIMENSION

Floor finish, sill and
landing as required

Scale: $1\frac{1}{2}'' = 1'-0''$



Lintels as required

Finish and trim as desired

MODULAR HEIGHT DIMENSION
(as selected)

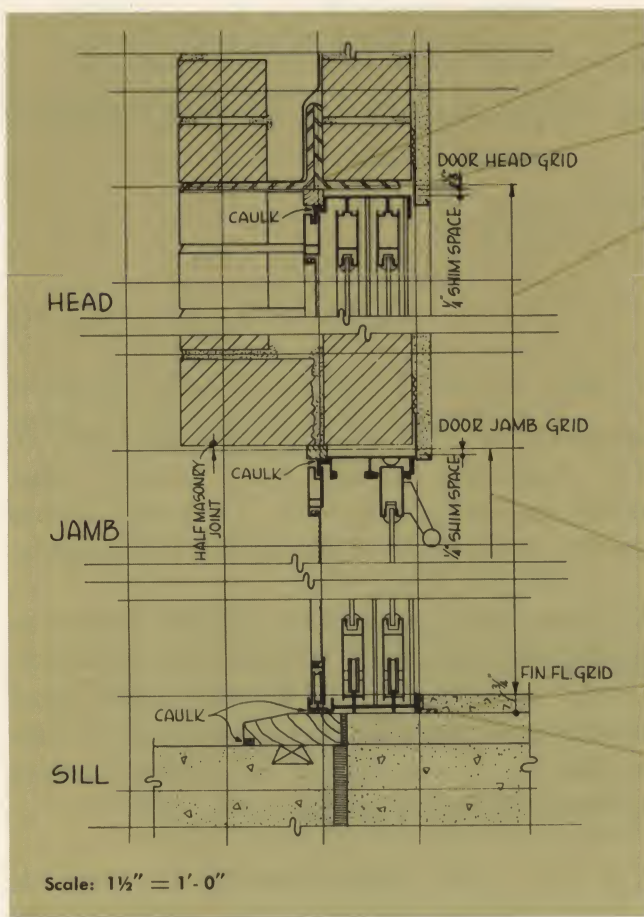
DETAIL 1-2-1-4

EXTERIOR SLIDING DOOR OF METAL IN SOLID
MASONRY CONSTRUCTION

MODULAR WIDTH DIMENSION

Floor finish, sill and
landing as required

Scale: $1\frac{1}{2}'' = 1'-0''$



Lintels as required

Finish and trim
as desired

MODULAR HEIGHT DIMENSION
(as selected)

DETAIL 1-2-1-5

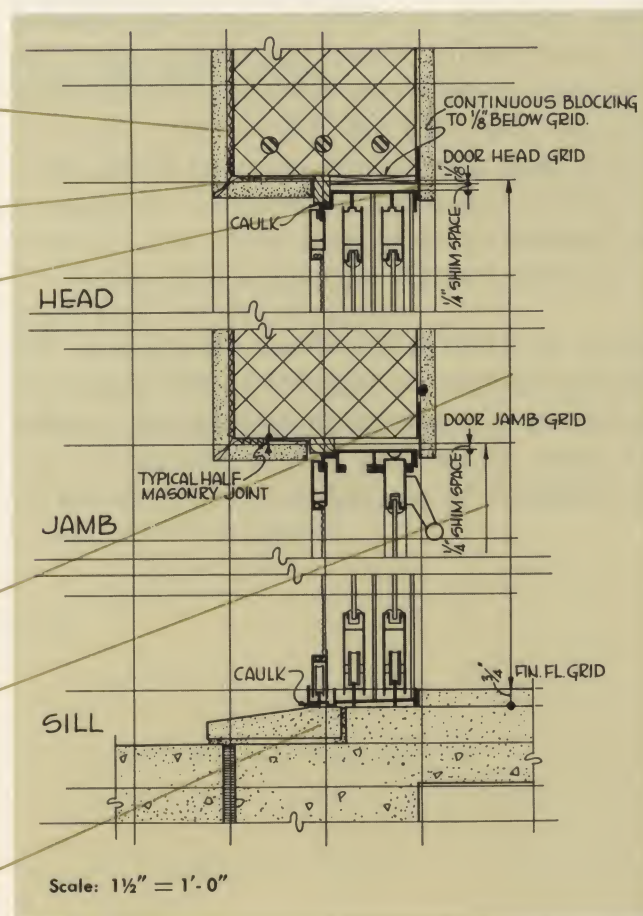
EXTERIOR SLIDING DOOR OF METAL IN
MASONRY, CAVITY WALL CONSTRUCTION

MODULAR WIDTH DIMENSION

Floor finish, sill and landing as desired

Continuous metal edge
angle desirable for
terrazzo floors

Scale: 1 1/2" = 1'-0"



Check local construction
techniques for stucco
bonding method

Lintel as required

Finish and trim
as desired

DETAIL 1-2-1-6

EXTERIOR SLIDING DOOR OF METAL IN CBS
CONSTRUCTION

MODULAR HEIGHT DIMENSION
(as selected)

MODULAR WIDTH DIMENSION

Floor finish, sill and
landing as required

Scale: 1 1/2" = 1'-0"

SECTION 2-1-1

Interior-Swing Type Doors in Metal Frames

WHILE VIRTUALLY HUNDREDS of possible installation details might be presented in this section, illustrations have been limited to one basic frame section in four general types of construction. A quick review of manufacturer literature identifies sections which install flush with the wall surface, protrude slightly, or are recessed. Face thicknesses are generally in the 2" category. Other sections give a moulded trim quality and some have integral plaster grounds.

Depths of frames also vary from manufacturer to manufacturer. Frames with "throat openings" adequate to receive a given wall material can most readily be used in situations where the architects prefer to use the jambs in a surround manner. [see DETAIL 2-1-1-1 (d)]. Any masonry jamb detail can be executed in this manner and remain modular because 2" of masonry is involved on each jamb which will maintain a modular masonry opening of multiples of 4".

Using the jamb details shown elsewhere in this section permits economy often recognized by architects who attempt to minimize the number of frame depths used on any one job. If this is a factor to be pursued, the detailer should be

cognizant of 180° door swings where desired. The butt-frame option with narrow frame shown in DETAIL 2-1-1-1 (c) would require moving to the right to accomplish this purpose.

Stock and standard sizes for different jamb configurations vary from producer to producer. Depths of sections, with modular Door Head Heights and Modular Widths selected for production by a number of manufacturers are shown in table on page 32.

The 7'-4" frame height simplifies far more detailing situations than any other height but the detailer should be cognizant of the coursing ramifications for those masonry materials which are $3c = 16"$. DETAIL 2-1-1-1 (a) further explains this isolated situation. Alternatives are: Use of wall material with 4" or 8" repeating intervals of courses; special headers over lintels; or using a base starter course of 8".

Details for door heights of 6'-8" and 7'-2" can be somewhat similar when surround frames are used. [see DETAIL 2-1-1-1 (d)]. The 6'-8" height accommodates masonry coursing at $3c = 16"$, 4" o.c. or 8" o.c.

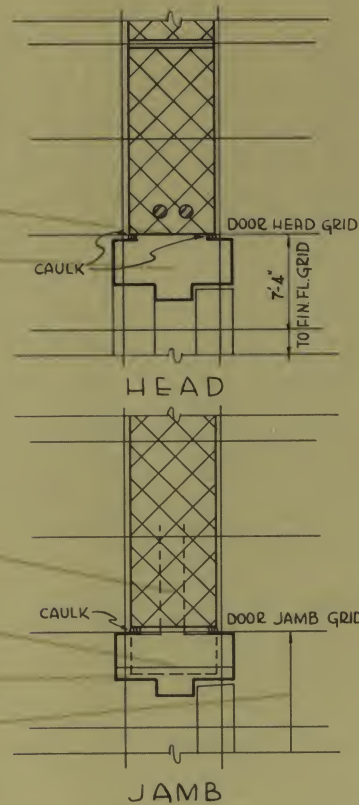
NOTE: Tile walls with 8" coursing used for illustration. Change horizontal coursing and material indications for other 4" thick masonry wall materials. Use starter course or special headers for 3c=16"

DETAIL 2-1-1-1(a)

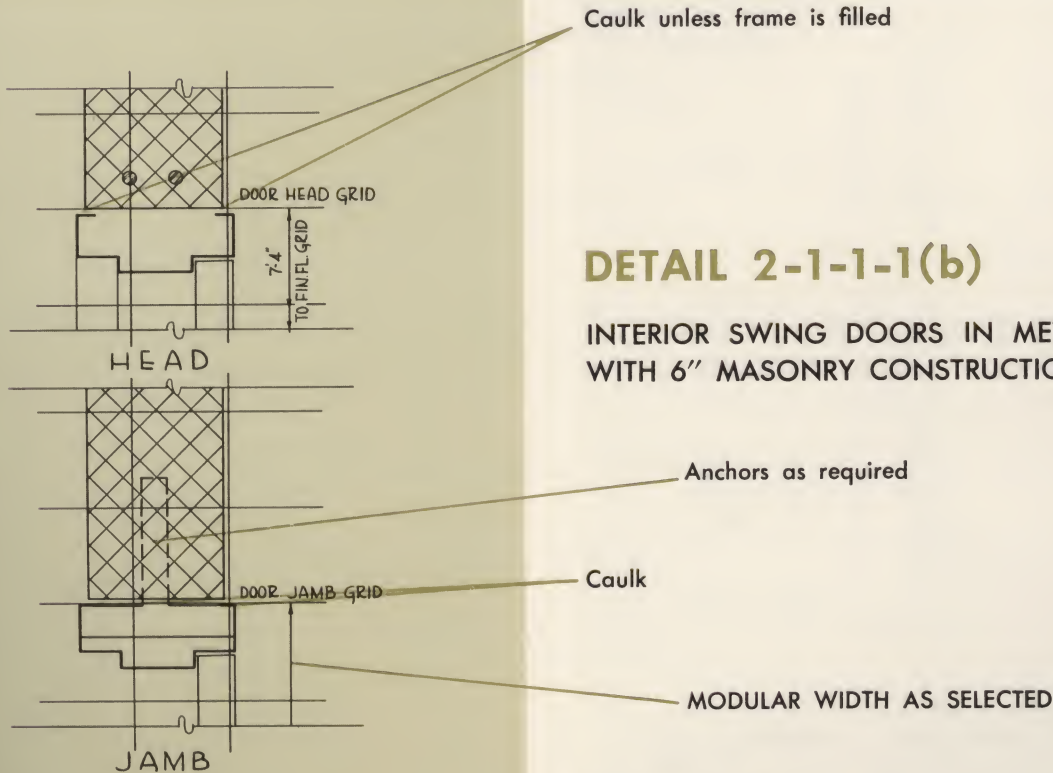
INTERIOR SWING DOORS IN METAL FRAMES WITH 4" MASONRY CONSTRUCTION

- Lintel as required
- Fill or grout frame as desired
- Anchors as required
- Fill or grout optional
- Optional jamb detail (used as surround frame)
- MODULAR WIDTH AS SELECTED

NOTE: Other frame depths may be used. Narrower frame with bull-nosed tile is common.



Scale: 1 1/2" = 1'-0"

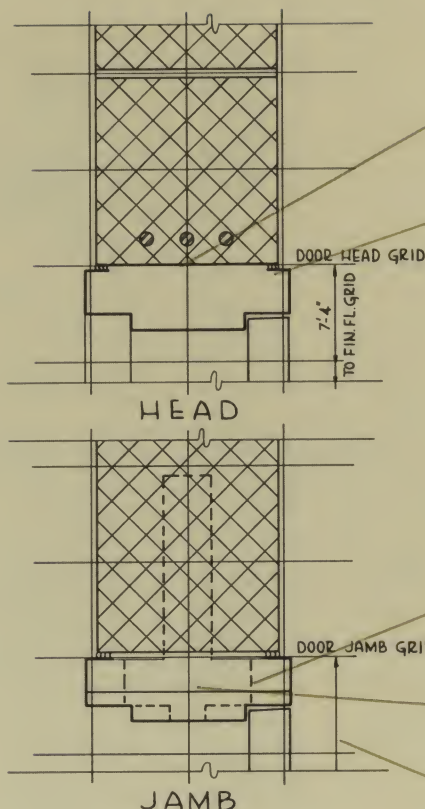


DETAIL 2-1-1-1(b)

INTERIOR SWING DOORS IN METAL FRAMES WITH 6" MASONRY CONSTRUCTION

All notes on DETAIL 2-1-1-1(a) apply

Scale: 1 1/2" = 1'-0"



Lintel as required

Caulk or fill

DETAIL 2-1-1-1(c)

INTERIOR SWING DOOR IN METAL FRAMES
WITH 8" MASONRY CONSTRUCTION

Optional jamb detail
(dotted) shown as narrower
frame often used
with bull-nose tile

Caulk or fill

MODULAR WIDTH AS SELECTED

Scale: $1\frac{1}{2}" = 1'-0"$

DETAIL 2-1-1-1(d)

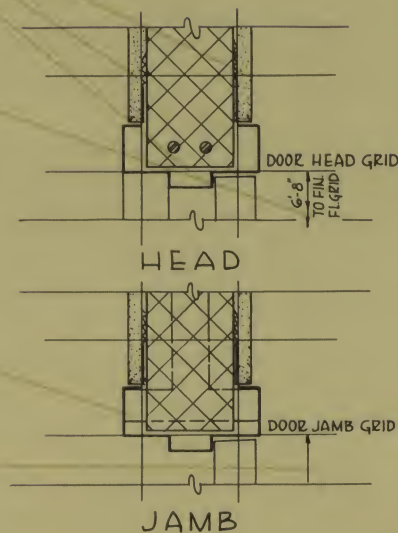
ALTERNATE SURROUND FRAME INSTALLATION
FOR 6'-8" DOORS IN MASONRY CONSTRUCTION

Finishes and lintel
as required

DOOR HEIGHT

Projected frame shown -
flush with wall
may be used

DOOR WIDTH



NOTE: Door head and jamb grid-lines
remain in same position regardless of wall
thickness. Use appropriate frame depth for
each wall thickness. This alternate detail applies
to DETAILS 2-1-1-1(a), (b), & (c). Gypsum
block often used with this method of installation

Scale: $1\frac{1}{2}" = 1'-0"$

Interior wall finishes as desired (plaster on rock lath is common)

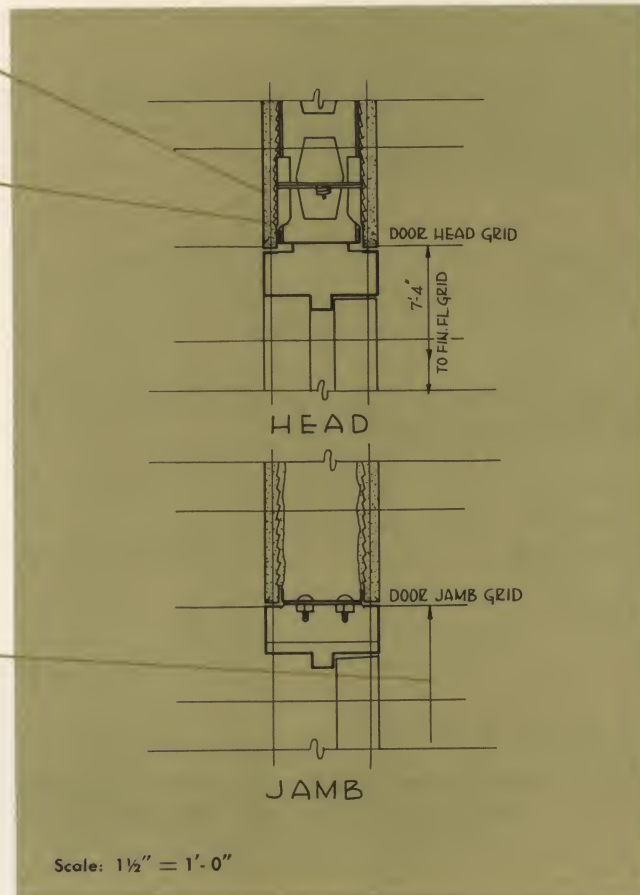
Many variations found in types of steel stud systems – refer to manufacturer for anchorage details

DETAIL 2-1-1-2

INTERIOR SWING DOORS IN METAL FRAMES WITH STEEL STUD CONSTRUCTION

MODULAR WIDTH AS SELECTED

NOTE: 4" wall thickness shown
Other thicknesses are in standard production



Interior finishes as required (1/2" drywall finish shown)

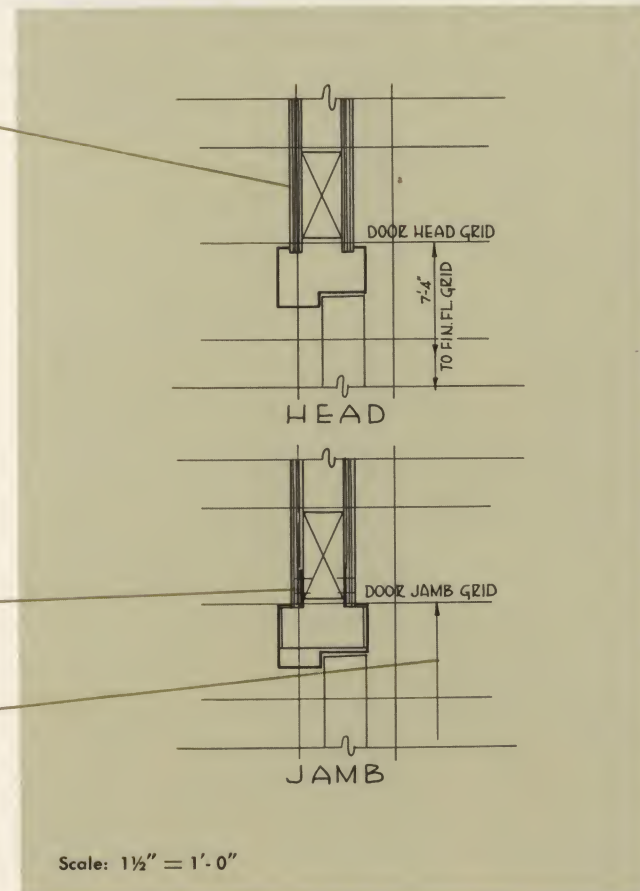
DETAIL 2-1-1-3(a)

INTERIOR SWING DOORS WITH METAL FRAMES IN 2" WOOD STUD CONSTRUCTION

Anchors as required

MODULAR WIDTH AS SELECTED

NOTE: Wall may be located with respect to vertical grid line at the centerline or opposite face



Plaster on rock lath shown

Alternate framing shown

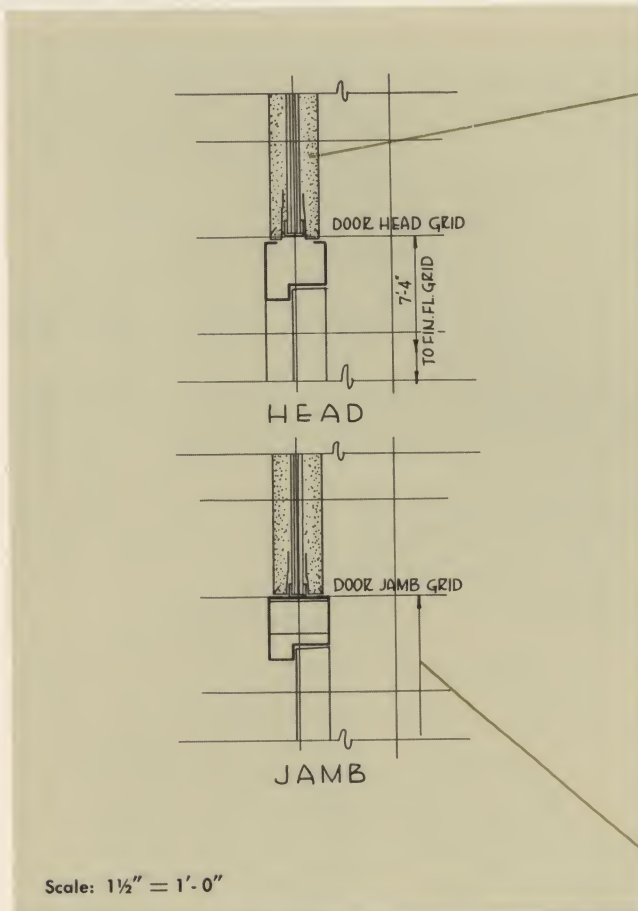
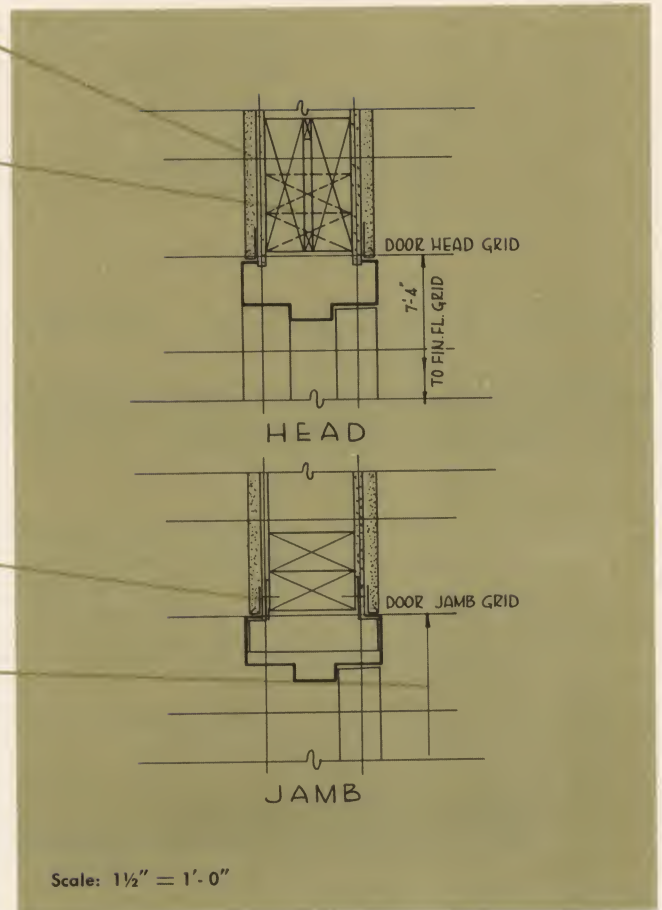
DETAIL 2-1-1-3(b)

INTERIOR SWING DOORS WITH METAL FRAMES
IN WOOD STUD PARTITIONS

Anchors as required

MODULAR WIDTH AS SELECTED

NOTE: Installation details for 6" wood stud walls similar to above with face grid located as in DETAIL 2-1-1-3(a)



Dry-wall core with plaster shown. May be solid plaster on metal lath

DETAIL 2-1-1-4

INTERIOR SWING DOOR WITH METAL FRAME IN
2" SOLID PARTITION

MODULAR WIDTH AS SELECTED

Interior Swing Type Doors in Wood Frames

SECTION 2-1-2

ALL DETAILS INCLUDED IN THIS SECTION are predicated on the use of doors 7'-2" high and modular widths.

Jamb and head details work exceptionally well for this size door where modular wall materials surround the frames. (Note DETAILS 2-1-2-1). By establishing the single door height as the same used with other types of frames, alternate bid variables resulting from different heights and sizes can be eliminated. This is a decision each architect or detailer must make for himself as related to the basic types of wall construction employed on each different project.

A one-inch continuous blocking strip around

each opening is required in wood frame construction to accommodate the uniform door size. An alternate to this method of achieving the modular door opening is to drop the lintel by approximately one inch and to move the vertical studs in a similar amount. Where totally wood stud construction is involved, this alternate may be a logical decision. Countering the arguments for this solution is the fact that blocking is inexpensive, easily and quickly installed and serves to smooth-up the opening prior to door frame installation.

Cross-sections of jamb trim pieces are shown as rectangular for illustration purposes only. Trim as desired.

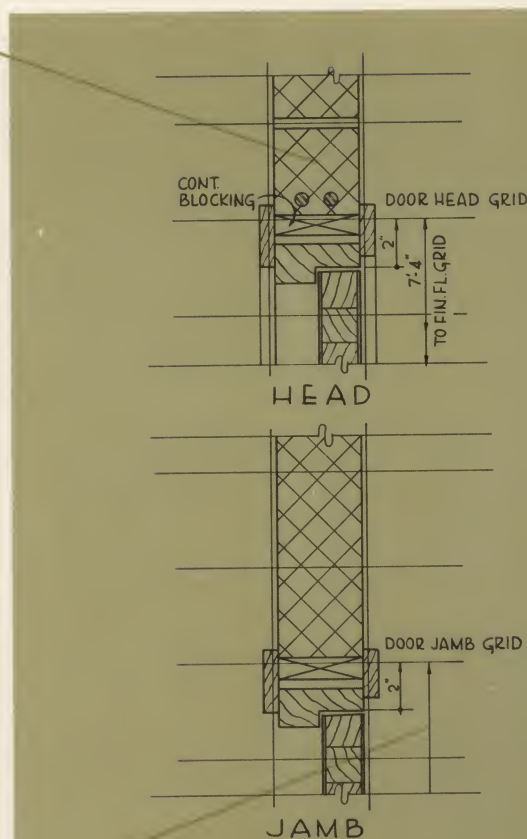
Tile walls with 4" coursing used for illustration purposes. Change horizontal coursing and material indications for other 4" thick masonry wall materials. Use starter course or special headers for materials with $3c=16"$

DETAIL 2-1-2-1(a)

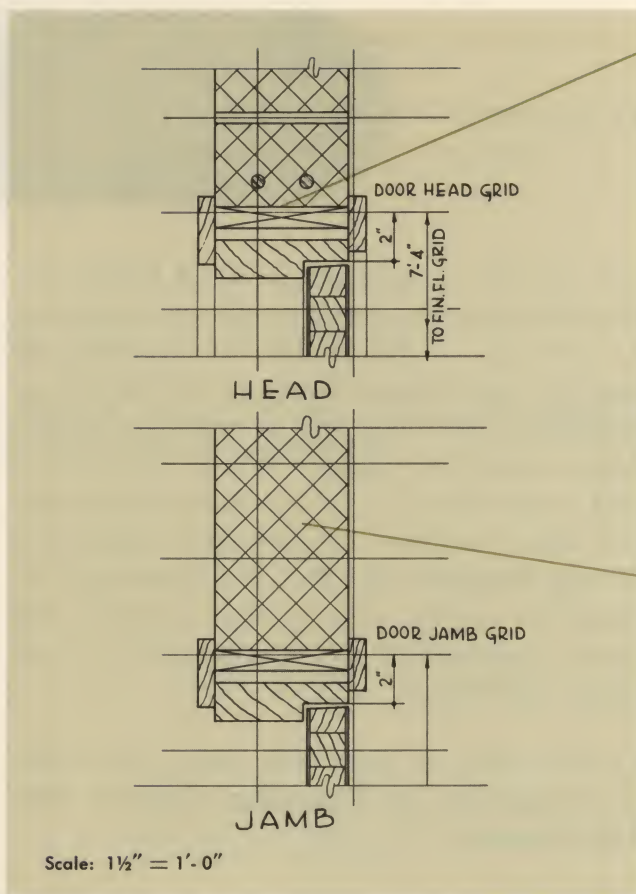
INTERIOR SWING DOORS WITH WOOD FRAMES IN MASONRY CONSTRUCTION

NOTE: Alternate variations in types of wood jambs shown in DETAILS 2-1-2-1(d); 2-1-2-2; and 2-1-2-3(b)

MODULAR WIDTH AS SELECTED



Scale: $1\frac{1}{2}" = 1'-0"$



Lintel as required

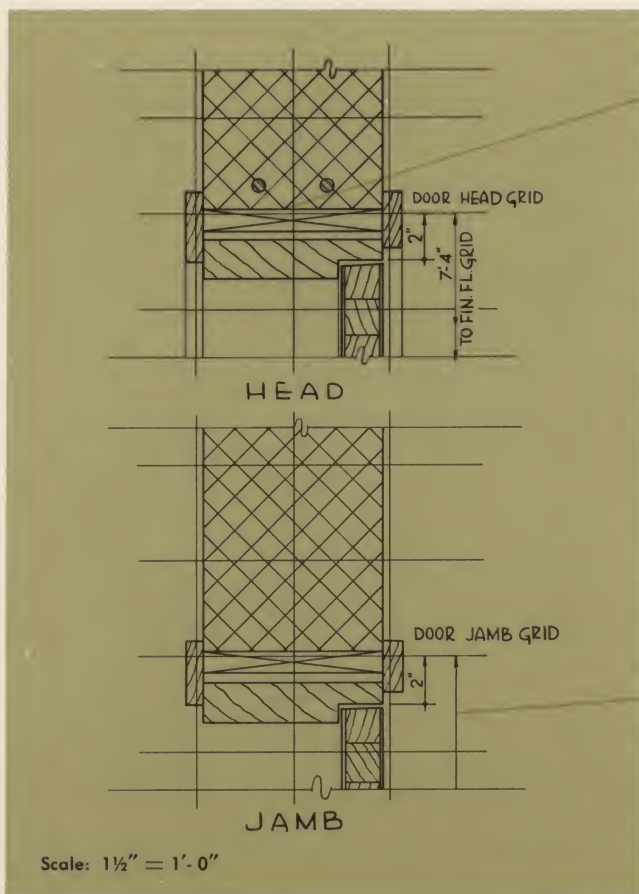
DETAIL 2-1-2-1(b)

INTERIOR SWING DOORS WITH WOOD
FRAMES IN MASONRY CONSTRUCTION

Tile walls with 4" coursing
used for this illustration

MODULAR WIDTH AS SELECTED

Scale: $1\frac{1}{2}" = 1'-0"$



Lintel as required

DETAIL 2-1-2-1(c)

INTERIOR SWING DOORS WITH WOOD FRAMES
IN MASONRY CONSTRUCTION

MODULAR WIDTH AS SELECTED

Scale: $1\frac{1}{2}" = 1'-0"$

NOTE: Narrower frame may be used by
changing trim

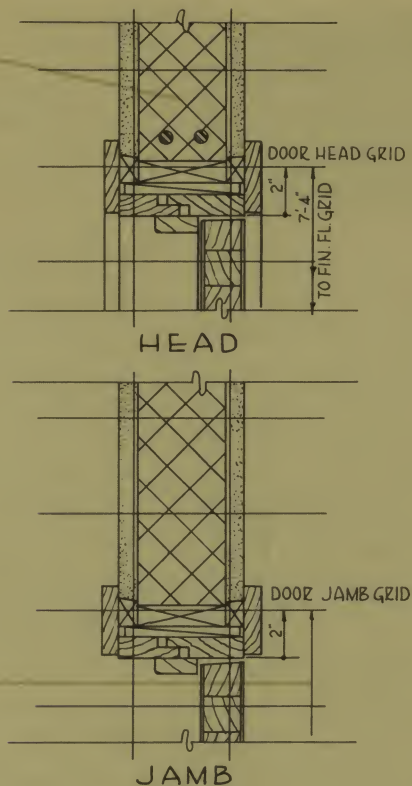
4" Concrete block plastered shown in illustration. Other material combinations possible. Check spec's for bonding method

DETAIL 2-1-2-1(d)

INTERIOR SWING DOOR WITH WOOD FRAME
IN MASONRY CONSTRUCTION

MODULAR WIDTH AS SELECTED

NOTE: Similar details may apply to 6" and 8" walls



Scale: 1 1/2" = 1'-0"

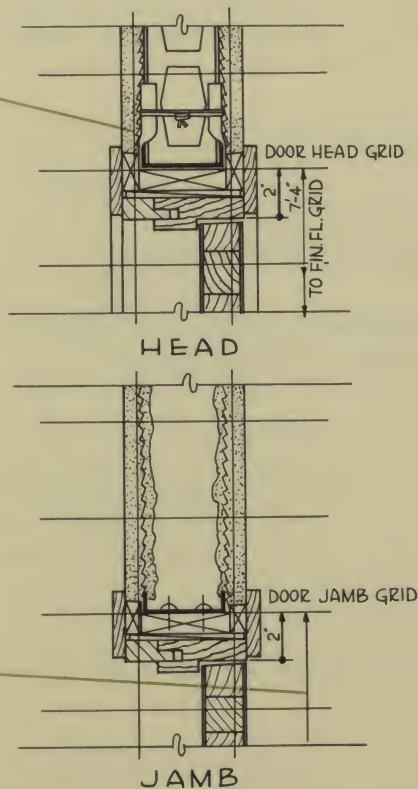
Interior wall finish as desired
(plaster on metal lath shown)

DETAIL 2-1-2-2

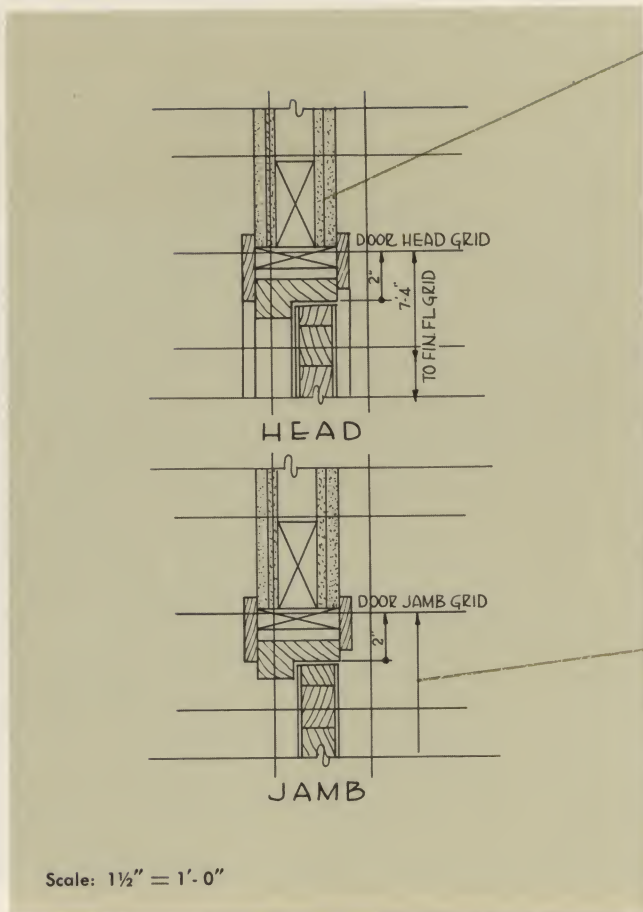
INTERIOR SWING DOOR WITH WOOD FRAME IN
STEEL STUD PARTITION

MODULAR WIDTH AS SELECTED

NOTE: 4" wall thickness shown. Other thicknesses in production



Scale: 1 1/2" = 1'-0"

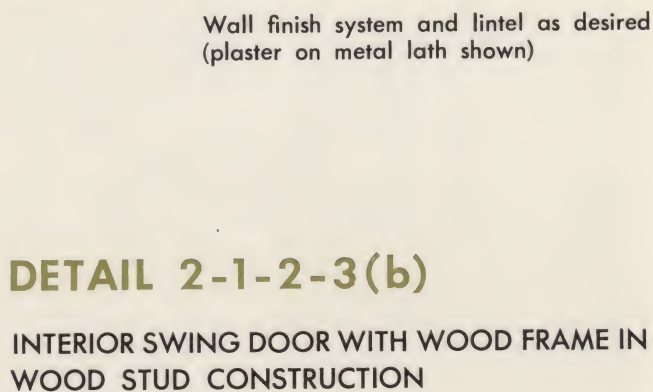


DETAIL 2-1-2-3(a)

INTERIOR SWING DOOR WITH WOOD FRAME IN
2" WOOD STUD PARTITION

MODULAR WIDTH AS SELECTED

NOTE: Optional locations for vertical
grid-lines are partition centerline and
centering partition between grid-lines



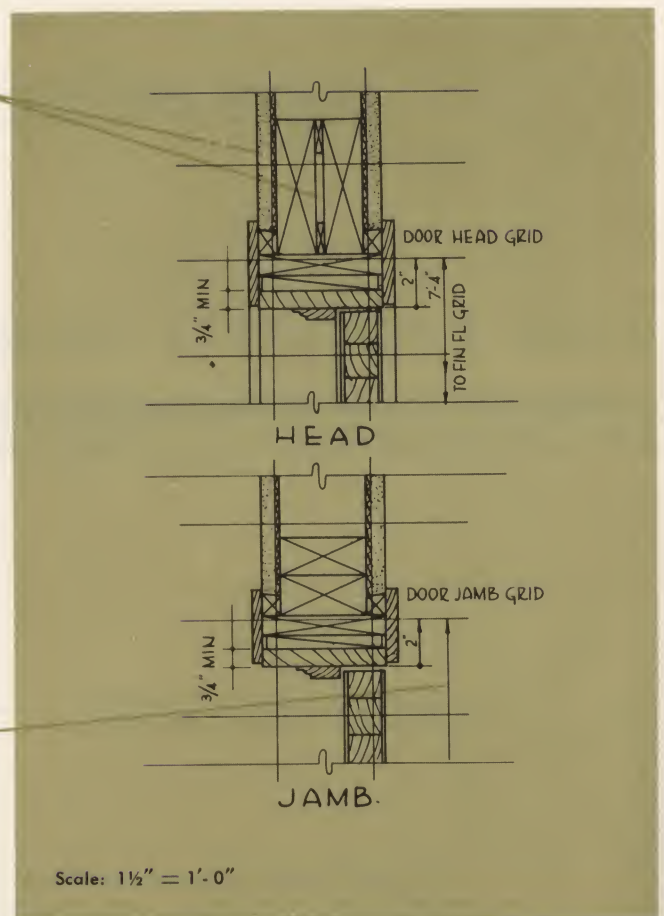
DETAIL 2-1-2-3(b)

INTERIOR SWING DOOR WITH WOOD FRAME IN
WOOD STUD CONSTRUCTION

NOTE: Typical standard one-piece
jamb illustrated. Usually
furnished with jambs dadoed
and shipped knocked-down

MODULAR WIDTH AS SELECTED

NOTE: Details are same for 6" stud wall
with one vertical grid-line located as in
DETAIL 2-1-2-3(a)



Sliding and Folding Interior Doors of Wood or Metal

SECTION 2-2

CONSIDERABLE DIMENSIONAL VARIATIONS are presently found among products used in such installations. All floor to ceiling installations are subject to the dimensional controls imposed by interior ceiling heights. Figure 3 graphically illustrates the dimensional characteristics as established by modular floor to ceiling heights.

Note that the most commonly found modular ceiling height is 8'-0." 8'-4" is also common in residential construction where a single 2 x 4 sill plate and double 2 x 4 head plates are used with 8'-0" stock lengths for studs. With a typical condition of bottom of ceiling joists being $\frac{1}{4}$ " above the ceiling grid line, the remaining variable of concern to door manufacturers is the thickness of various types of ceiling materials. With the variations in thicknesses of ceiling materials ranging from $\frac{3}{8}$ " to 1", it is logical to assume that most manufacturers can develop ways of accommodating the maximum variation of $\frac{5}{8}$ " by the type of hardware used in the assembly. Another solution is to undersize the assembly slightly and to use a continuous blocking strip at the head to take up dimensional variations from one type of construction to the next.

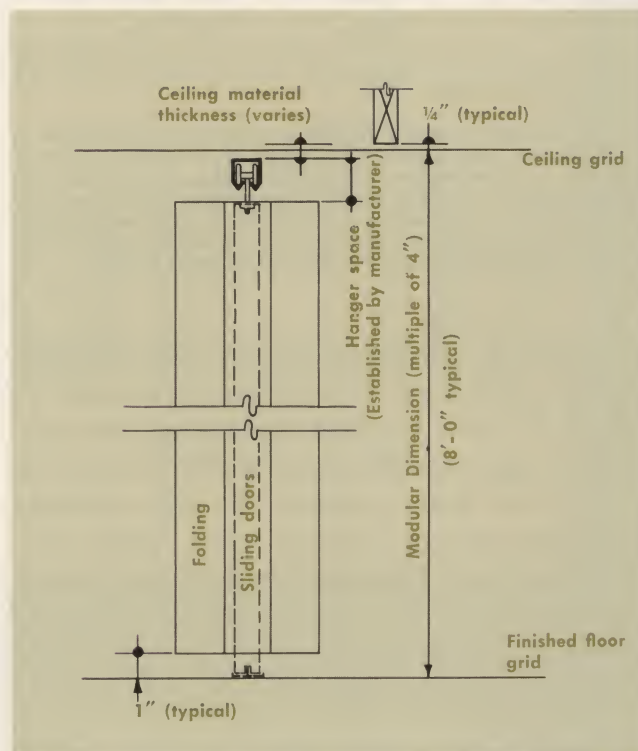
Installations using partitions above the door head to enclose the space between door head and ceiling experience no particular dimensional difficulties whatsoever. In such cases the door-head grid is established on the detail in the same manner as all other details in this guide. A strong case should be pleaded for use of the 7'-4" height unless an 8'-0" or floor-to-ceiling installation is called for. Again, alignment with the design elements of lintels over windows and other lintels is the primary reason. Another significant reason is that masonry coursing may also establish door head heights of sliding and folding units on the same job.

While *pocket* type sliding door installations have not been included among illustrations in the study, it is only because of applicability of the same dimensional considerations as outlined above. Door-head grids for these installations are established in exactly the same manner and the jamb, or pocket, details may be developed to satisfy the individual needs of the project construction.

FIGURE 3

Height Characteristics of Interior Folding and Sliding Doors

NOTE: $\frac{1}{4}$ " head clearance and $\frac{3}{4}$ " sill recess has been used for developing the typical "door dimensions" for the three modular heights identified. Doors with other dimensional clearances and recesses are in production. The modular height dimensions do remain fixed. The manufacturer then adjusts his sections, clearances and recesses to accommodate glass cut in 1" increments and yield the grid-to-grid dimension desired.



ABOUT DOORS IN GENERAL

Standard Sizes: At the time of preparing this publication two Commercial Standards are in existence pertaining to two of the three principal categories covered in the illustrations.

For Steel doors the Commercial Standard C S 242-62 identifies three primary standard heights with sizes as shown in the following table:

"3. STANDARD SIZES

3.1 Opening sizes.—Doors and frames shall conform to the standard opening sizes given in Table 1.

TABLE 1.—Standard Opening Sizes ¹

WIDTH & HEIGHT	WIDTH & HEIGHT	WIDTH & HEIGHT
2'0" x 6'8"	2'0" x 7'0"	2'0" x 7'2"
2'4" x 6'8"	2'4" x 7'0"	2'4" x 7'2"
2'6" x 6'8"	2'6" x 7'0"	
2'8" x 6'8"	2'8" x 7'0"	2'8" x 7'2"
3'0" x 6'8"	3'0" x 7'0"	3'0" x 7'2"
3'4" x 6'8"	3'4" x 7'0"	3'4" x 7'2"
3'6" x 6'8"	3'6" x 7'0"	
3'8" x 6'8"	3'8" x 7'0"	3'8" x 7'2"
4'0" x 6'8"	4'0" x 7'0"	4'0" x 7'2"

¹ Sizes shown are for single doors only, for pairs of doors use twice the width indicated.

¹ This standard does not include provisions for the erection of doors, frames and accessories. However, it does include manufacturers' recommendations for storage and erection. Also, this standard does not apply to steel doors, as covered by Commercial Standard CS211-57 (Flush Type Interior Steel Doors and Frames), or any of the following: Metal clad doors (kalamein wood metal covered), industrial doors of the single sheet panel type."

The note at the bottom of the table excludes interior steel doors and frames as covered in CS211-57 but at the time of preparing this publication eight manufacturers had introduced the 7'-2" (7'-4" frame) height into their standard production lines for interior doors. These manufacturers are supplying the items in accordance with the following illustrations established by the technical committee of the Steel Door Institute: See Figures 5 and 6.

U.S. Commercial Standard CS171-58, titled

Hardwood Veneer Doors was amended in March of 1962 to include the following statement:

"7.1 Standard Sizes—The standard stock sizes of hardwood veneered doors as shown in Table III are generally available for the standard stock designs and layouts shown in Section 8 of this Standard. However, doors of other sizes, including intermediate sizes are usually available on special order, and may be considered as conforming to this Standard, provided they meet or exceed all other requirements specified herein."

At the present time, no counterpart to the Commercial Standards for wood and steel doors covers metal sliding doors.

A one-page MBSA graphic illustration of the dimensional characteristics of modular products is currently used for listing of modular qualifications of materials and products in the *Building Products Registry* of the American Institute of Architects. It should be emphasized that the door leaf dimensions cannot be used as a criterion, but rather, the outside frame dimensions represent the elements that must be dimensionally compatible with adjacent materials and products. One copy of the MBSA single page illustration is available upon request.

Producer members of MBSA are entitled to use a Modular designation symbol on their descriptive literature. This graphic symbol as shown below identifies those manufacturers taking an active role in accommodating architect requests for modular sized products.

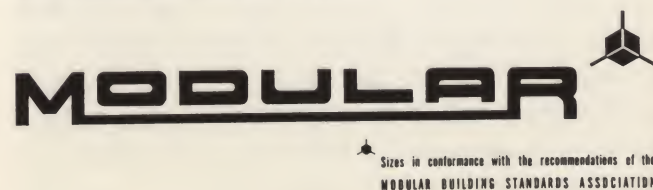


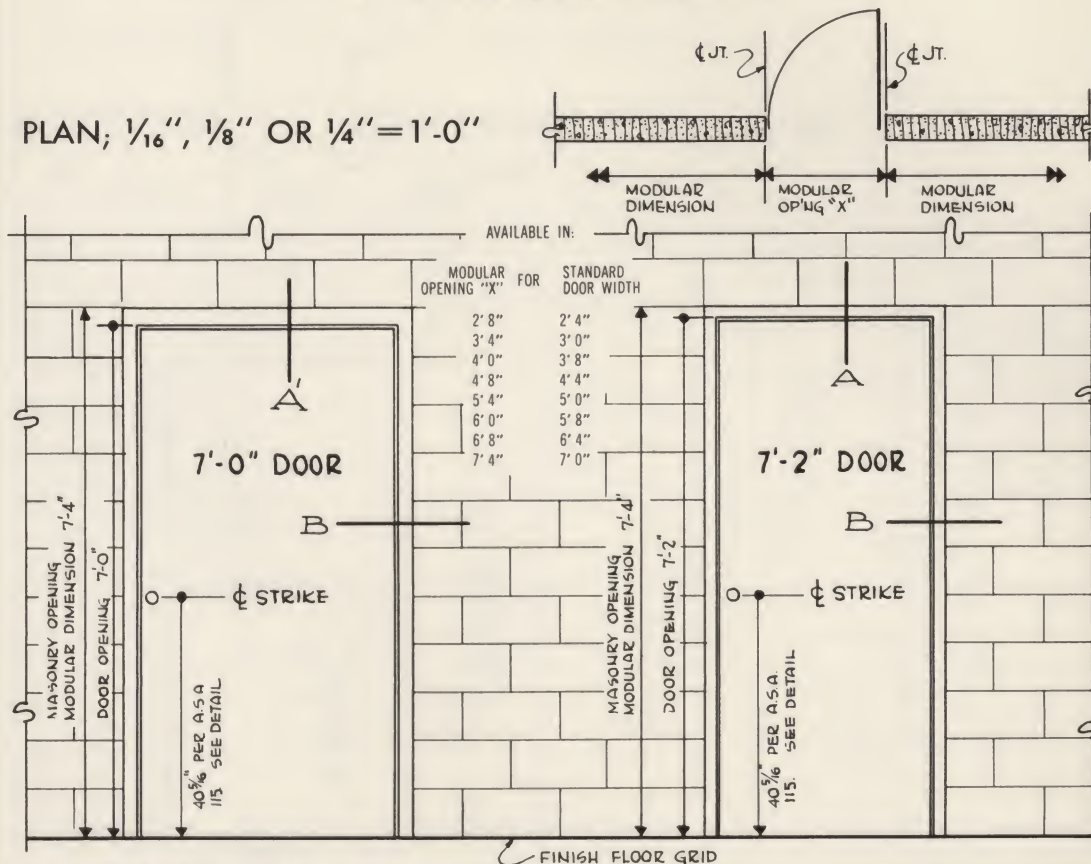
FIGURE 4

Modular Building Standards Association
Modular Product Designation Symbol

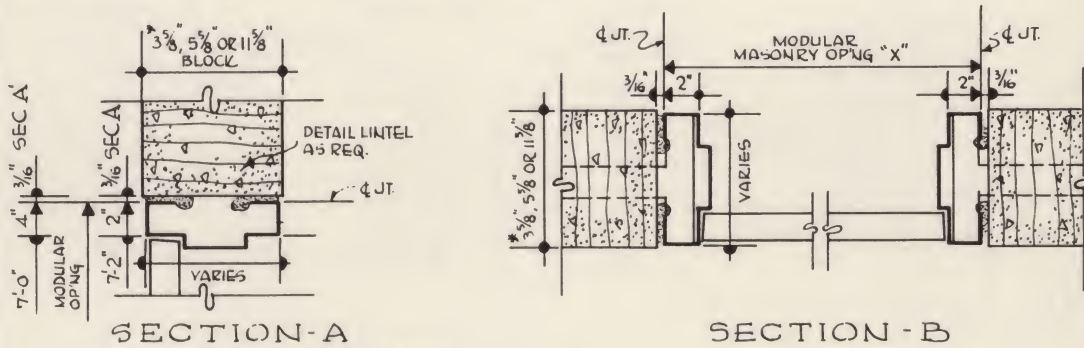
BUTT TYPE FRAME

7'-4" FRAME HEIGHT

PLAN; $\frac{1}{16}"$, $\frac{1}{8}"$ OR $\frac{1}{4}" = 1'-0"$



ELEVATION; $\frac{3}{8}"$, $\frac{1}{2}"$ OR $\frac{3}{4}" = 1'-0"$



* SINGLE RABBETED FRAME ACCEPTABLE

DETAILS; $\frac{1}{2}"$ OR $3" = 1'-0"$

FIGURE 5

Dimensional Characteristics of 7'-0" and 7'-2" Steel Doors and Frames

WRAP AROUND FRAME

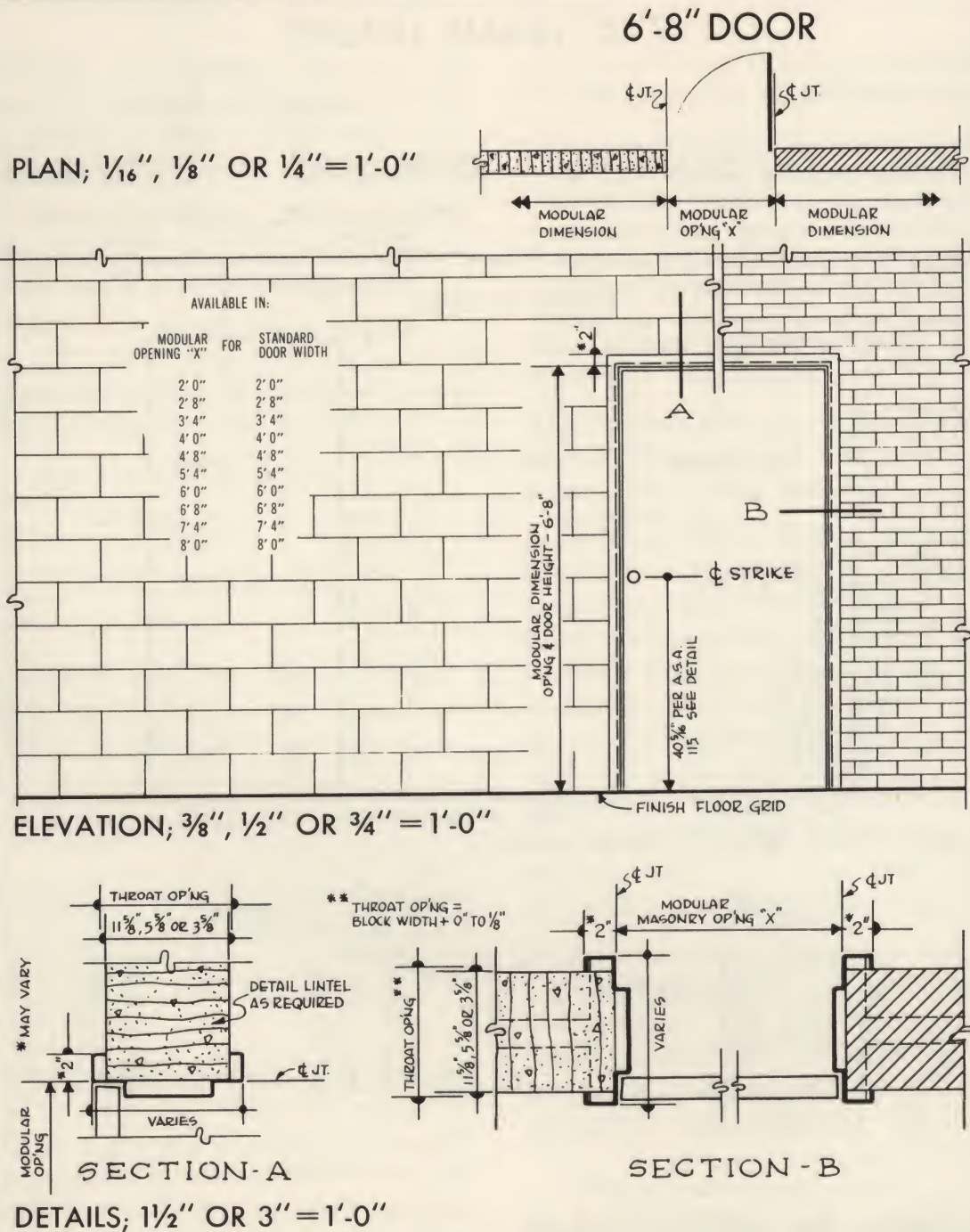


FIGURE 6

Dimensional Characteristics of 6'-8" Steel Doors and Frames

A. S. A. LOCK & STRIKE DETAILS

A. CYLINDRICAL LOCKS-1³/₄" DOOR

B. BORED LOCKS - 1³/₄" DOOR

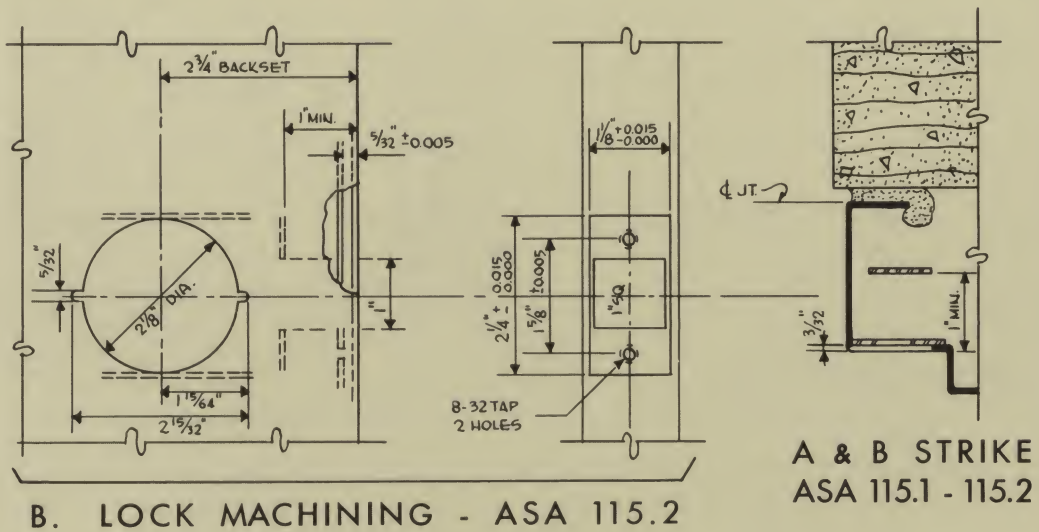
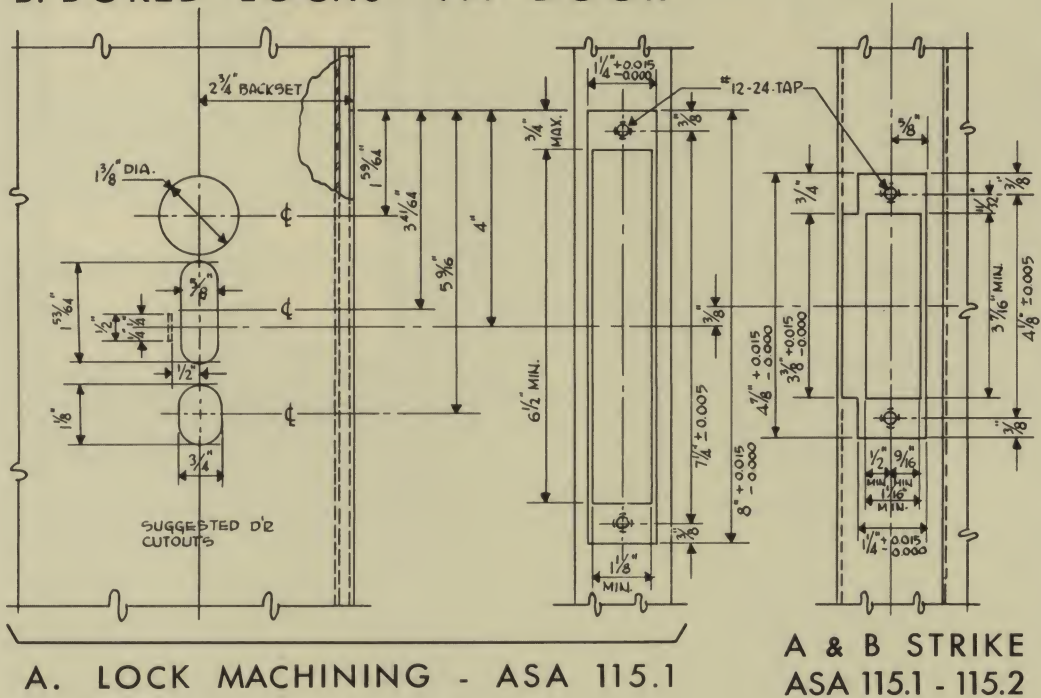
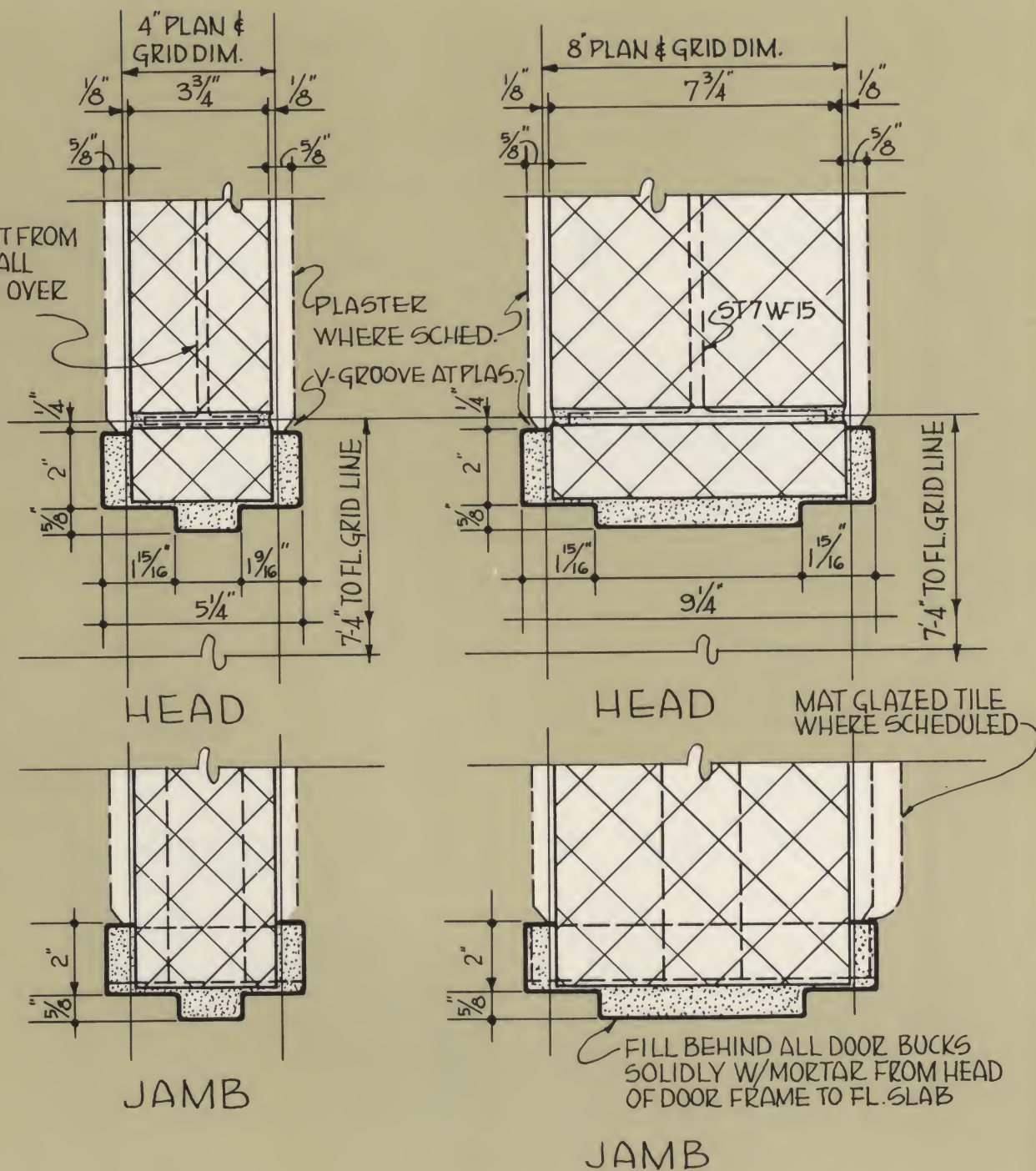


FIGURE 7

American Standard for Hardware Location

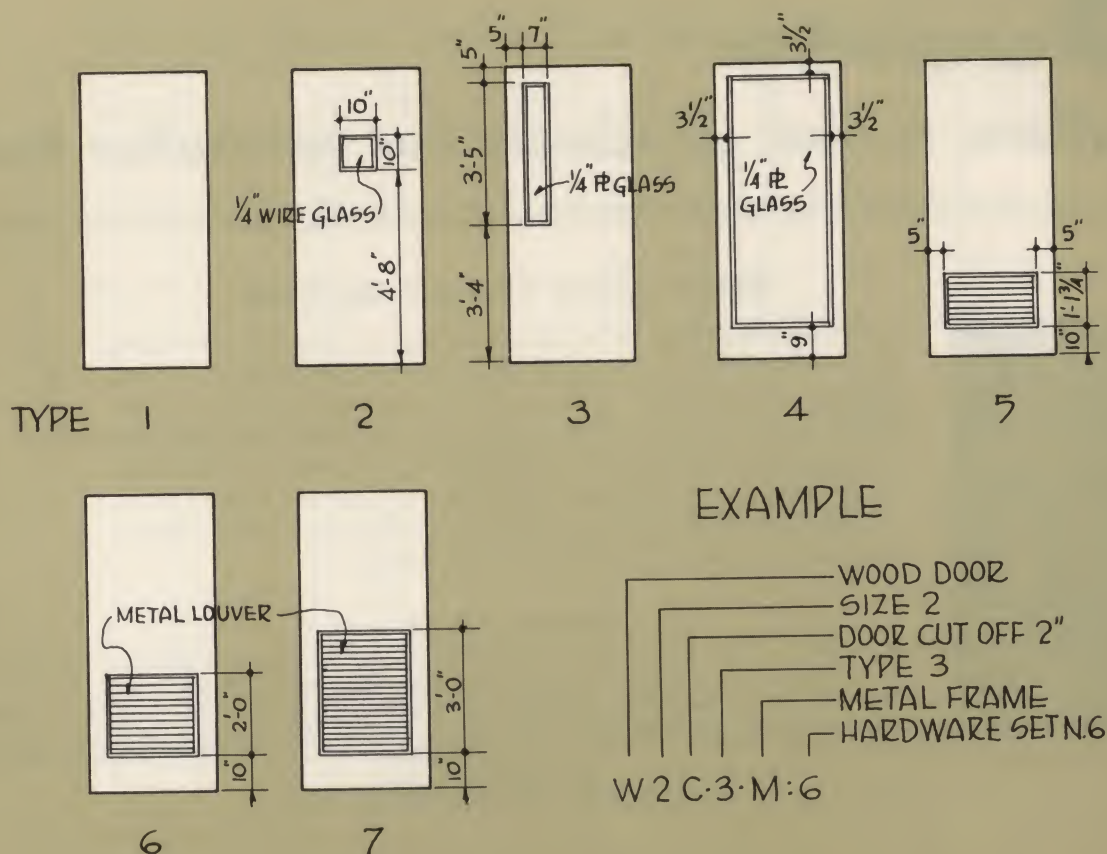
T 3x5x4.5 CUT FROM
12 JR. 11.8 FOR ALL
DOOR OPNG'S OVER
3'-8" WIDE



METAL DOOR FRAME DETAILS

FIGURE 8

Working Drawing Door Details for First National Bank of Bluefield, West Virginia
C. E. Silling & Associates, Charleston, West Virginia—Architects



DOOR MATERIAL	FRAME MATERIAL	DOOR OPNG. SIZE
M = METAL	W = WOOD	1. 2'-4" x 7'-2" x 1 3/4"
A = ALUMINUM	M = HOLLOW MET.	2. 2'-8" x 7'-2" x 1 3/4"
W = WOOD	A = ALUMINUM	3. 3'-0" x 7'-2" x 1 3/4"
		4. 3'-4" x 7'-2" x 1 3/4"

EXPLANATION OF DOOR CODE

- PREFIX LETTER INDICATES DOOR MATERIAL.
- FIRST NUMERAL INDICATES DOOR SIZE.
- SUCCEEDING NUMERAL OR NUMERALS INDICATES DOOR TYPE OR TYPE COMBINATION.
- SUFFIX LETTER INDICATES FRAME MATERIAL.
- HARDWARE SET NO. IS INDICATED BY NUMBER FOLLOWING FRAME LETTER & COLON.
- WHERE DOORS ARE HUNG IN PAIRS, BOTH DOORS SAME AS MARKED INDICATION.
- THE CALLOUT ARROW POINTS TO KEY SIDE OF DOOR AND TO ACTIVE DOOR WHERE HUNG IN PAIRS.
- LETTER "C" FOLLOWING DOOR SIZE INDICATES DOOR CUT OFF 2" ABOVE FLOOR.
- LABELLED DOORS ARE INDICATED BY LABEL LETTER IN PARENTHESIS FOLLOWING HARDWARE DESIGNATION.

FIGURE 9

Door Schedule and Typical Plan Notations for Bank Project
Bluefield, West Virginia



hollow metal products for modular building

Speediline frame service

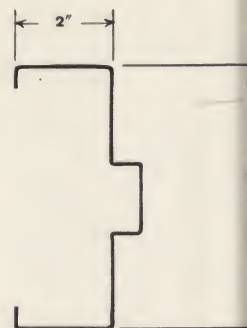


Speediline frame

72-HOUR SHIPMENT. By taking stocked component parts, assembling them and attaching accessories, reinforcements and anchors to order, Overly can provide high-quality *customized* standard door frame commodity-type products for immediate delivery. With the Speediline Frames, door styles 1, 2, 3, 50, 51, 59, 60, 61, 62, 63, 64 and 67 also may be ordered for quick delivery. To assure early delivery of your order, address your inquiry to the Speediline Sales Manager, Overly Manufacturing Company, Greensburg, Pennsylvania.

frame sizes

Height	Width	Lock Strike Preparation	Hinge Preparation
6'8", 7'0", 7'2"	As required	Cylindrical—2¾" Full mortise—5¾" ASA 115.2—4⅞"	4½" regular weight



profile



typical elevations available

These are a few suggestions out of the thousands of frame designs or elevations which can be quality fabricated of Speediline components in our factory. "Customized hollow metal when you need it!"

Overly Solid Core Doors

A major innovation in door design and construction, the Overly Solid Core Door uses a solid fire-retardant organic core to provide the building industry with unique advantages. Compare these advantages with doors you've used:

- Light weight (3.6 lb. per sq. ft.) makes this door easier to handle, requires lighter hinges and closing mechanisms, reduces installation costs.
- Solid cores eliminate the corrosion problem. Doors do not rust from the inside out, because solid cores prevent condensation of moisture on the doors' interior surfaces.
- A low K factor (0.24) permits use of this door on exterior applications with negligible heat loss.
- The solid core reduces impact damage. A force of

39-ft.-lb is required to make a skin deflection of 1/8". A force of 1110 lb is required to bring about a skin-core delamination. The result is a strong, durable door that will resist wear—slam tests of 600,000 cycles proved the door can equal 25 years' service without deterioration.

- Solid Core Doors are available in finishes to match any decor, including stainless steel, aluminum, vinyl clad steel, phenolic resin faces, fiberglass, Acrylic Lucite®, porcelain enamel materials and wood grains. Prime and baked enamel are standard finishes on Solid Core Doors.

The Overly Solid Core Door is a product of over 5 years research work. Tests were conducted at the Building Research Laboratory at Ohio State University.

Overly Stock Solid Core Door Sizes

Designs	Sizes		Thickness	Hardware
	Width	Height		
(see below)	7'0"	6'8"	1 3/8"	ASA Strike
	2'4"			
	2'6"	(or)		
	2'8"		(and)	
	3'0"	7'0"		(and)
	3'4"			
	3'6"	(or)	1 3/4"	1 1/2 pr.
	3'8"			
	4'0"	7'1/2"		4 1/2"
				Hinges

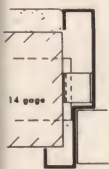


Other door designs or other configurations of lights and panels (raised or recessed) are available to the architect's specification.

the thin trim concept

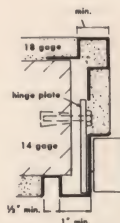
TT 2 and TT 2A

Most adaptable to masonry wall construction. TT 2A can be used as a full trim or stopped at 48" height on each jamb as corner guard (stainless steel recommended in this application) shadow or trim reveal on TT 2 may be painted contrasting color to accent opening. If used as exterior frame trim reveal may be modified to provide caulking pocket by removing plaster return leg.



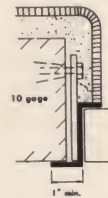
TT 1

May be furnished with blade stop. Recommended for use in masonry or wood stud wall construction.



TT 3

Shown for masonry wall installation. Anchorage altered as required for steel stud, wood stud or other wall construction. Shown single rabbeted, available double rabbeted.



TT 4

Ideal for constructing new openings in existing walls or for new construction. Anchorage adaptations available for any type of wall construction.

Thin Trim Frames are an important product innovation, with distinct aesthetic advantages for architects. No longer are metal frames simply copies of versions of wood frames that are carry-overs from earlier times.

Thin Trim permits expansion of wall space to take up the additional space provided, giving you more usable area where a large number of doorways are involved. Equally important, the architect may expand the size of the door, resulting in a greater ease of egress.

Greater variety is another feature of Overly Thin Trim. The architect may use the frame to stop the door and trim the opening, with the wall surface extending almost to the edge of the door.

If regular passage of equipment is expected, a full-perimeter trim or an economical corner guard may be used. Another Thin Trim design simply holds the door in position, providing ideal trim for a new opening in an

existing wall. Trimming the door on top and bottom, this frame is anchored in place by a plate which is then concealed by masonry or plaster construction.

If it is desired to eliminate trim completely, the design may provide over-lapping door edges on three sides, showing no exposed trim when the door is closed.

thin trim's modular applications

Thin Trim gives the architect a great deal more flexibility in design of modular construction. For example, as he decreases the frame size, he can increase the door size in direct proportion. Similarly, he can vary the amount of wall space in hallways by altering the frame width.

For assistance in using Thin Trim in your next project, Overly will supply you with technical and engineering assistance. Write: New Product Development Department, Overly Manufacturing Company, Greensburg, Pa.

Overly

Greensburg, Pa. • Los Angeles 39, Calif.

STEELCRAFT

The finest name in...

METAL DOORS and FRAMES

MEMBER OF THE MODULAR BUILDING STANDARDS ASSOCIATION

A COMPLETE LINE OF DOORS AVAILABLE IN ALL TYPES AND SIZES



Stile and Panel Type Construction. 20 Ga. or 18 Ga. Steel. Available in S-20 x 1 3/4, S-20 x 1 3/4, and S-18 x 1 3/4 Doors.



Stile and Rail Flush Panel Type Construction. Stiles 16 Ga. Steel, Panel 18 Ga. Steel. Available in S-16 x 1 3/4 Flush Panel Doors.



Stile and Rail Recessed Panel Type Construction. Stiles 16 Ga. Steel, Panel 18 Ga. Steel. Available in S-16 x 1 3/4 Recessed Panel Doors.



Full Flush Type Construction 18 Ga. or 16 Ga. Steel or .050" Aluminum. Available in H-18, H-16, and A-50 (Aluminum) Doors.



M



G



G2



G3



G4



V



NL



LG



L



BLS



BLA



DD

STANDARD DOOR AND FRAME SIZES

WIDTH

2'-0"
2'-4"
2'-6"
2'-8"
3'-0"
3'-4"
3'-6"
3'-8"
4'-0"

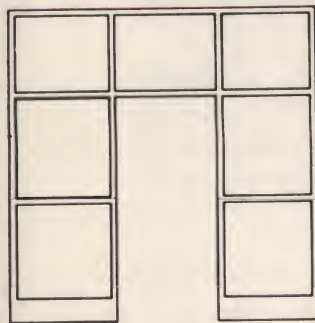
HEIGHT

6'-8"
7'-0"
7'-2"
8'-0"

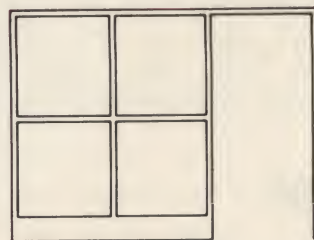
THICKNESS

1 3/4" All S
thru 30"
1 3/4" All S

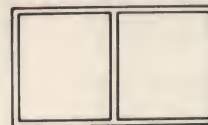
MODULAR TRANSOM AND SIDE LIGHT FRAMES



TRANSOM SIDE LIGHT



SIDE LIGHT



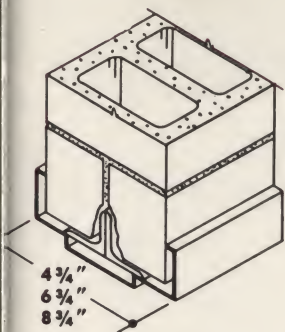
BORROWED LIGHTS

Steelcraft transom, side light and borrowed light frames can be furnished to meet architectural requirements for various job conditions and to fit modular openings. They can easily be fabricated by Steelcraft distributors using standard frame components. These frames help to reduce overall building cost and speed up job completion.

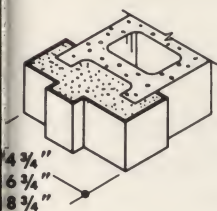
SEND FOR CATALOG OF COMPLETE PRODUCT LINE AND TECHNICAL DATA SHEETS

STANDARD DOOR FRAMES FOR MODULAR WALL CONSTRUCTION

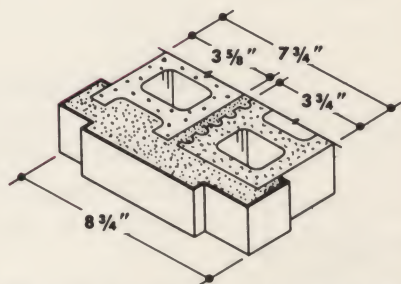
WRAP-AROUND INSTALLATION



HEAD SECTION

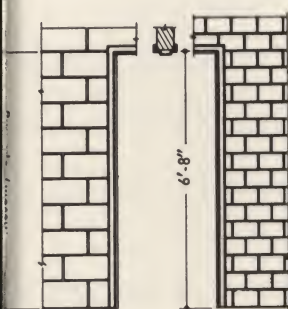


JAMB SECTION
EXTRA THICK WALLS

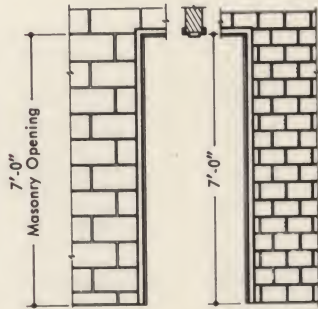


4", 6" OR 8"
BLOCK OR TILE

8" BLOCK AND TILE COMBINATION
OR 8" DOUBLE TILE

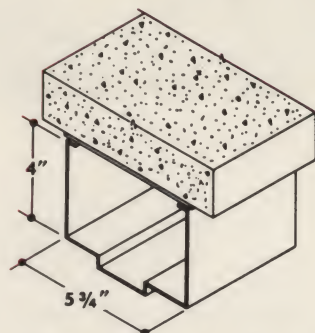


6'-8" FRAME

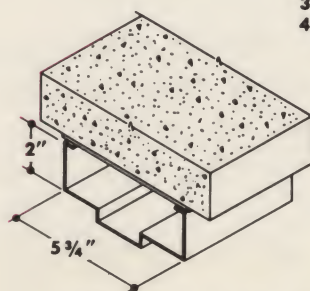


7'-0" FRAME

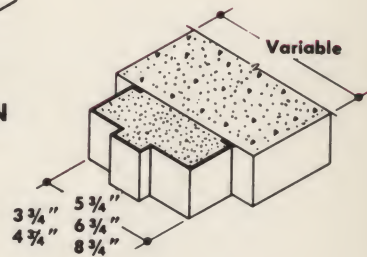
BUTTED INSTALLATION



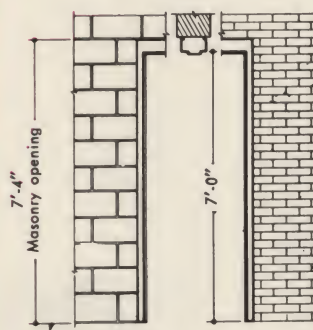
4" HEAD SECTION



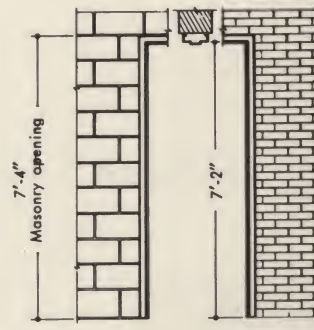
2" HEAD SECTION



BRICK, CONCRETE BLOCK
OR POURED CONCRETE

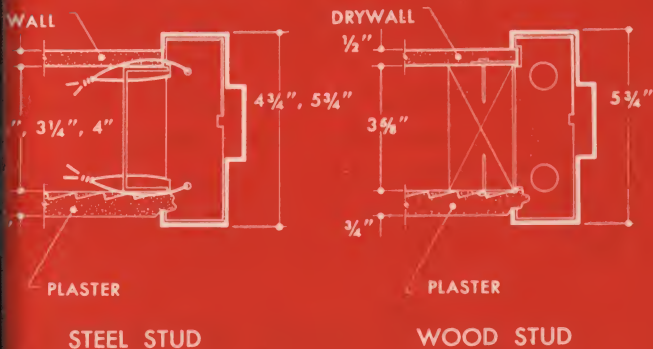


7'-0" FRAME WITH 4" HEAD

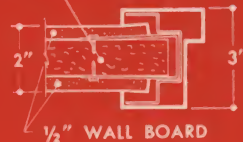


7'-2" FRAME

FRAMES FOR OTHER STANDARD WALL CONSTRUCTIONS



1" CORE BOARD



2" LAMINATED GYPSUM
PARTITION



STEEL
Craft

*finest name
in metal
doors and
frames*

The quality names
in patio doors

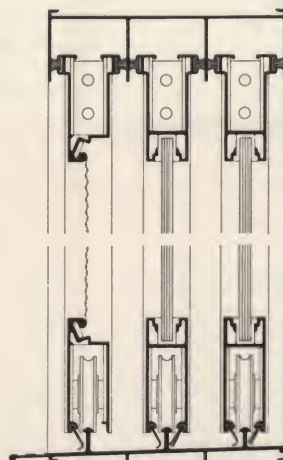
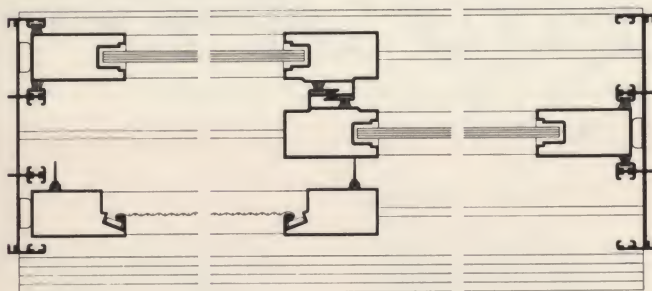
the new COMMAND 5

MULTI-SLIDE




The COMMAND/5

The patio door with the truly heavy-duty screen

In residential and commercial application,
the COMMAND/5 is perfectly adaptable
to any glass wall situation.



COMMAND/5 SIZES

	OVERALL FRAME SIZE	GLASS SIZE
2-panel doors 	6'1/4 x 6'9"	2 — 34 x 76
	8'1/4 x 6'9"	2 — 46 x 76
	10'1/4 x 6'9"	2 — 58 x 76
	6'1/4 x 7'11"	2 — 34 x 90
	8'1/4 x 7'11"	2 — 46 x 90
	10'1/4 x 7'11"	2 — 58 x 90
3-panel doors 	9'2 x 6'9"	3 — 34 x 76
	12'2 x 6'9"	3 — 46 x 76
	15'2 x 6'9"	3 — 58 x 76
	9'2 x 7'11"	3 — 34 x 90
	12'2 x 7'11"	3 — 46 x 90
	15'2 x 7'11"	3 — 58 x 90
4-panel doors 	12'2 x 6'9"	4 — 34 x 76
	16'2 x 6'9"	4 — 46 x 76
	20'2 x 6'9"	4 — 58 x 76
	12'3 x 7'11"	4 — 34 x 90
	16'2 x 7'11"	4 — 46 x 90
	20'2 x 7'11"	4 — 58 x 90

The COMMAND/5 can be produced in any special size within structural limitations.



Consider these features:

- Adjustable rollers and stiles — offering the best qualities of both methods of patio door adjustment
- By-passing panels for maximum versatility
- Headers with full 3/4" deflection clearance
- Anodized finish for lifetime protection
- Truly waterproof sill and frame corner
- Flush glazing channel for perfect sight lines
- Interior threshold . . . recessed pocketing . . . special arrangements
- Full five-inch frame which completely fills wall section . . . saves installation time . . . extended sill to receive rowlock for a sure, weathertight installation.
- Heavy-duty, full-section screen — constructed of hollow aluminum sections identical to glass panels . . . using the same rollers, same hardware . . . and with a unique spline that holds Fibreglas cloth so securely that it positively cannot be pushed out.

peachtree

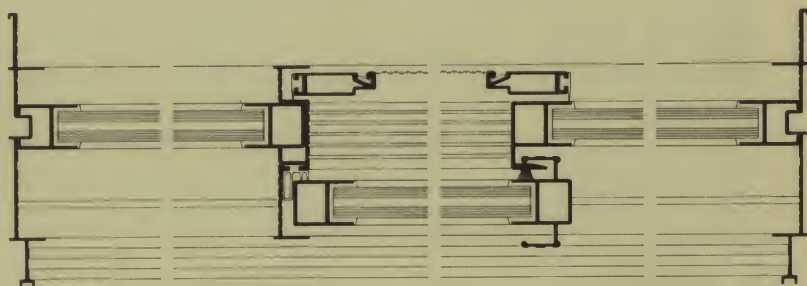
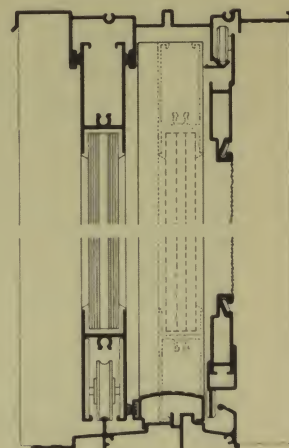
THE CITATION REVERSIBLE

THE CITATION . . . the special purpose, fully reversible door engineered specifically for the small opening in residential construction.

The CITATION is the original patio door with reversible panels . . . any standard two-panel unit may be reversed to open left or right exactly as received! No problems in specifying 0X or X0 doors. One CITATION does both—and can even be changed by the homeowner.

In addition to reversibility, the CITATION offers these added features:

- Inside top-hung screen absolutely cannot come off the track—and like all Peachtree Doors, its screen cloth cannot be pushed out accidentally. Top-hung inside . . . stays cleaner . . . it is self-storing, stacking neatly behind fixed panel.
- Weathertight design positively stops water and air infiltration. Wool and vinyl weatherstripping all in one plane acts as a perimeter seal against the face of the moving panel to prevent leakage. Multilevel sill and condensation gutter furnish complete water protection.
- Damage proof track protected by a rounded threshold which itself provides added traffic safety.
- Etched and anodized finish seals all CITATION surfaces for a lasting satin luster.
- Distinctive hardware
- Optional frame depths . . . 5 $\frac{3}{4}$ " which requires no "buck" or special trimming, 4 $\frac{5}{8}$ " with outside mold and nailing fin, standard 3 $\frac{5}{8}$ "—all with extended sill.



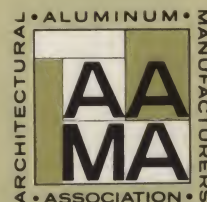
3-panel unit 5 $\frac{3}{4}$ " frame, dual-glazed

CITATION SIZES

TYPE	OVERALL SIZE	GLASS SIZE
2-panel doors (reversible)	5'10 $\frac{1}{2}$ " x 6'9" 7'10 $\frac{1}{2}$ " x 6'9"	34" x 76" 46" x 76"
3-panel doors	8'9 $\frac{1}{2}$ " x 6'9" 11'9 $\frac{1}{2}$ " x 6'9"	34" x 76" 46" x 76"

Architect and Builder Services


Complete services are available to the architect and builder in solving individual job problems, including architectural packets which are available upon request.



All Peachtree Doors are manufactured in compliance with the "quality approved" certification program of the Architectural Aluminum Manufacturers Association.

P. O. BOX 19682
ATLANTA 25, GEORGIA
PHONE AREA 404—448-2171

For a complete packet of installation and sectional details, contact your nearest Peachtree Door distributor or write the factory direct. WE WILL SHIP AIR MAIL TO YOU.


door

HOW DO YOU PUT AN ALUMINUM DOOR ... In a Hollow Steel Frame?



HANG A **DESCO** NSTD

(NARROW STILE DOOR MATED
TO ANY STEEL FRAME)



The DESCO NSTD (Narrow Stile Door for Steel Frame) illustrated here solves your problem of how to glamorize the most *functional* of all commercial entrances: the hollow steel frame. Because of its versatility, Desco's NSTD is especially designed for low-cost installation. It adds beauty and slim-lined gracefulness to any entrance without upsetting the most modest budget. In old installations as well as new, the DESCO NSTD is the best buy, dollar for dollar, of any custom-designed aluminum door on the market today.

Adds Sparkle and clean lined beauty to
the most functional hollow steel frame



DESCO: the ultimate in styling *and* design flexibility...

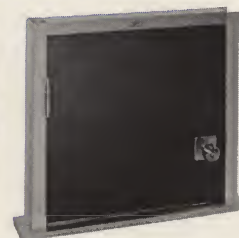
allows use of an aluminum door in a steel frame

... steel in aluminum ... or aluminum in aluminum



STEEL IN DESCO ALUMINUM

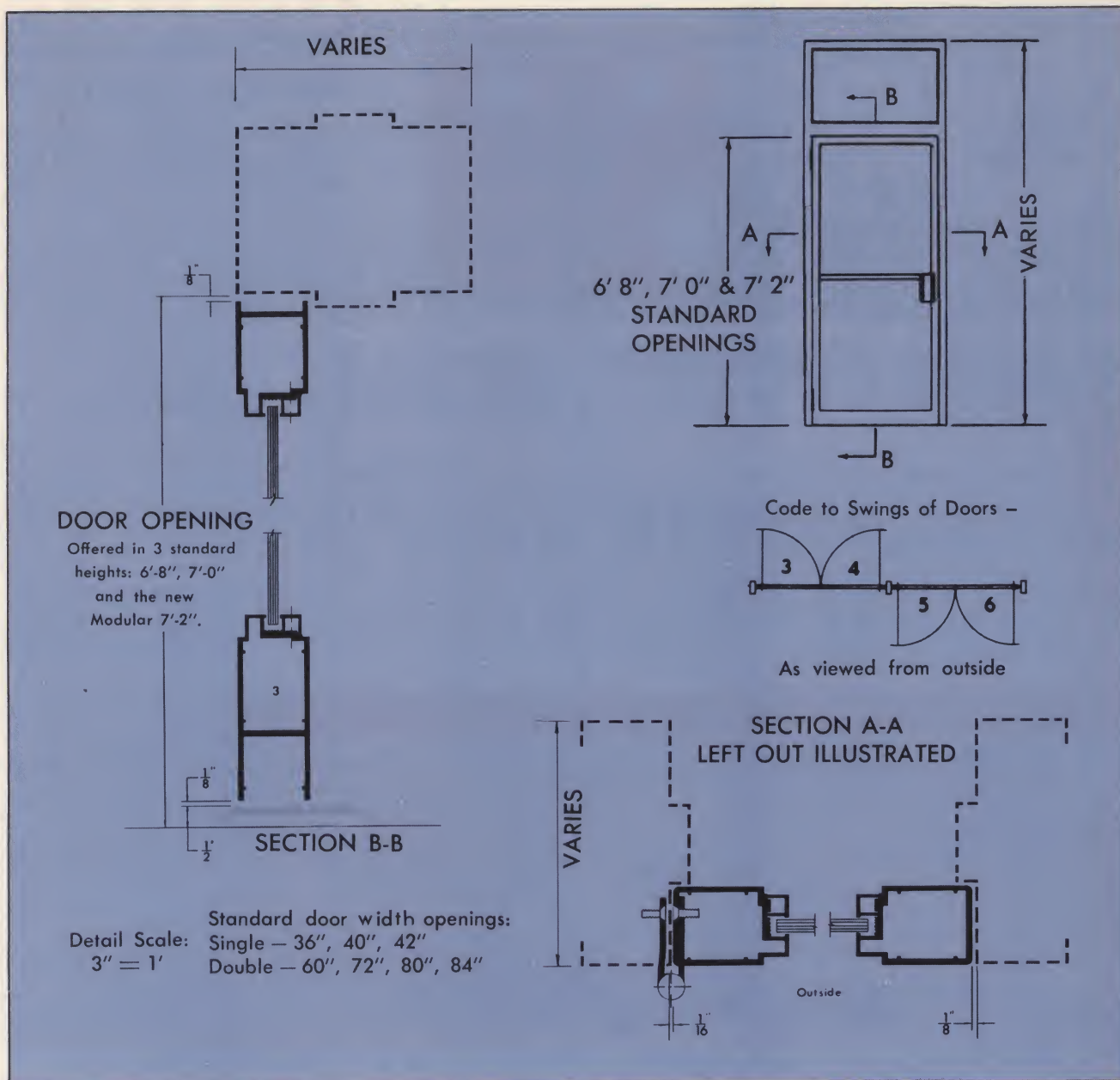
In reverse order, a steel door can be put into any number of fine Desco aluminum frames ranging from $\frac{1}{2}$ " x $2\frac{1}{8}$ " to $1\frac{3}{4}$ " x 4" and up to $2\frac{3}{4}$ " x $9\frac{1}{2}$ " and including squares such as 5" x 5"—more than doubling the design possibilities of a steel door.



DESCO ALUMINUM IN STEEL



Desco's NSTD aluminum door series mates into a steel frame without the need of any special engineering. Only a screw driver is needed to fasten the screws of the Desco $4\frac{1}{2}$ " government template hinge into the normal hinge preparations of the steel frame.



SPECIFICATIONS

STEEL FRAMES:

Frames must be installed plumb, square, and level to provide a clear rectangular opening for door size selected.

MODEL "NSTD" NARROW STILE ALUMINUM DOOR:

All door sections to be tubular extruded aluminum $\frac{1}{8}$ " thick with internal ribs, 6063-T5 architectural alloy, polished and anodized on all exposed surfaces per NA2-CE-1A (204 A1R1), with vertical stiles $1\frac{3}{4}$ " x 2"; head rail $1\frac{3}{4}$ " x $2\frac{1}{4}$ "; and bottom rail $1\frac{3}{4}$ " x 4".

CONSTRUCTION:

Doors to be accurately joined and fitted with mortise and

tenon joints, internally secured by $\frac{3}{8}$ " steel tie-rod. WELDED DOORS WILL NOT BE ACCEPTED.

HARDWARE:

Doors to be prepared for all hardware same to be furnished loose with fasteners, packed at one door corner. Hardware furnished to include $1\frac{1}{2}$ pair hinges $4\frac{1}{2}$ x 4" BB plated steel; one style "C" pull handle; one push bar; one dead-lock with cylinders and keys. On pairs of doors, one leaf to have flush bolts.

GLAZING:

Doors to be glazed by others under Glazing Section. 4 lead glazing blocks for blocking glass, and glazing stops to be furnished with door for use by glazier.



... just screw the NSTD into the frame and it's hung. Standard steel frame preparations make it as simple as that! NSTD is the most versatile aluminum door series money can buy.

ANOTHER PRODUCT BY

DESCO

ESTABLISHED 1864

METALS COMPANY

2264 WILKINS • DETROIT 7, MICH. • Area 313 567-0300



AMWELD®

DOORS AND FRAMES FOR MODULAR CONSTRUCTION

Here is as much practical and valuable information on dimensional and installation characteristics of our product line as we can pack into two pages. For further details and specifications we suggest that you consult the Sweet's Architectural Catalog File. Our constant aim is to assist you in combining **beauty** with **performance** with **economy** with the broadest line of standard products in the industry.

NEW 2" FACE "Clean Line" FRAMES

1 3/8 FRAMES								FRAME HGT. SINGLE OP. DOUBLE OP.		
	3"	3 3/4"	4 3/4"	5 1/2"	5 3/4"	6 3/4"	8 3/4"	6'8"	6'8" and 7'0"	1' 6" 2' 0" 2' 4" 2' 6" 2' 8" 3' 0"
										4' 0" 4' 8" 5' 0" 5' 4" 6' 0"
Gauges Avail.	16 & 18 ga.	16 & 18 ga.	16 & 18 ga.	16 ga.	16 & 18 ga.	16 ga.	16 ga.			

Available in all sizes on chart

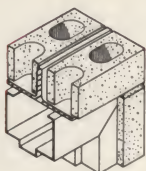
1 3/4 FRAMES								FRAME HGT. SINGLE OP. DOUBLE OP.		
	3"	3 3/4"	4 3/4"	5 1/2"	5 3/4"	6 3/4"	8 3/4"	6'8"	7'0" and 7'2"	2' 0" 2' 4" 2' 6" 2' 8" 3' 0" 3' 4" 3' 6" 3' 8" 4' 0"
										4' 0" 4' 8" 5' 0" 5' 4" 6' 0" 6' 8" 7' 0" 7' 4" 8' 0"
Gauges Avail.	16 ga.	16 ga.	16 & 18 ga.	16 ga.	16 & 18 ga.	16 ga.	16 ga.			

Available in all sizes on chart

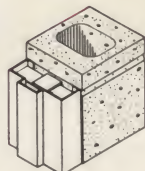
* 3/8" Returns available when 3" frame is to be used with 2" solid plaster walls.

Underwriters' label frames are available in 4 3/4", 5 1/2", 5 3/4", 6 3/4" and 8 3/4" depths in 6'8", 7'0" and 7'2" heights and 16 gauge. Underwriters' label frames have welded-on adjustable masonry anchors and preparation for 1 1/2" pair 4 1/2" x 4 1/2" template hinges.

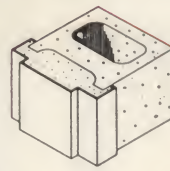
TYPICAL AMWELD INSTALLATIONS



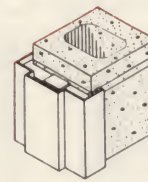
5 1/2" FRAME WITH 4" HEADER IN 8" CONCRETE BLOCK WALL



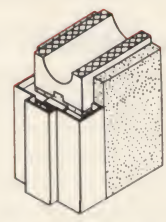
4 3/4" FRAME IN MASONRY WALL



8 3/4" FRAME IN 8" CONCRETE BLOCK OR BRICK WALL



6 3/4" FRAME IN 6" CONCRETE BLOCK OR BRICK WALL



5 1/2" FRAME IN 4" CLAY TILE PLASTERED



MODULAR SIZES

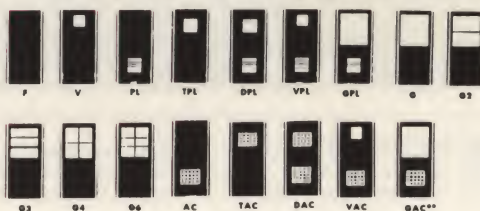
WIDTHS:

2' 0" *
2' 4" *
2' 6"
2' 8" *
3' 0" *
3' 4" *
3' 6"
3' 8" *
4' 0" *

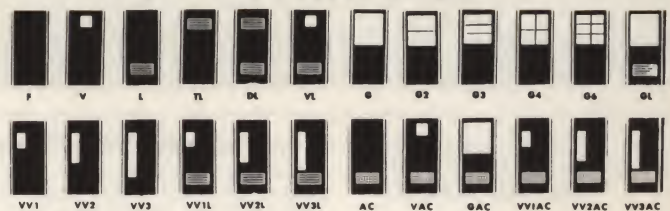
HEIGHTS:

6' 8" *
7' 0"
7' 2" *
8' 0"

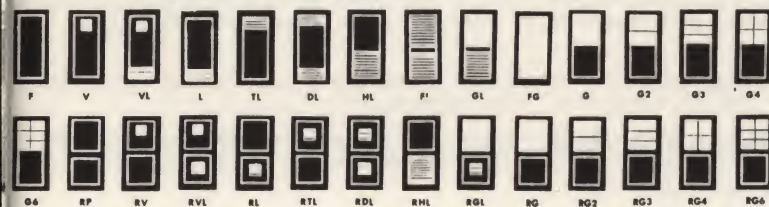
Series 100 COMMODITY DOOR



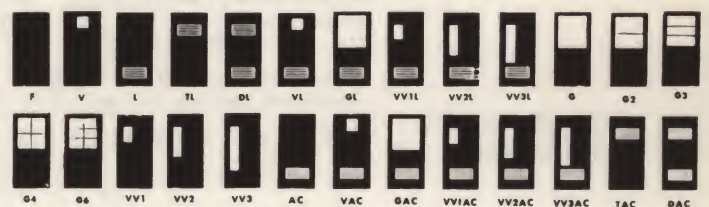
Series 700 STURDI-DOOR



Series 300 HEAVY-DUTY DOOR



Series 900 SEAMLESS DOOR



Borrowed Lights, Sidelights, Transoms Custom Fabricated From Stock Components.

Pre-engineered by Amweld, FAB-A-FRAME allows the architect full freedom of design . . . assures prompt delivery to the job-site. Assemblies are competitively priced because all components are mass-produced to rigid Amweld engineering and production requirements and assembled locally.

Your imagination knows practically no limitations when you specify locally fabricated FAB-A-FRAME assemblies.



WRAP-AROUND FRAMES

For modular construction, Amweld manufactures wrap-around frames in depths of 4 3/4", 6 3/4" and 8 3/4" for 4", 6" and 8" block walls. Wrap-around frames for 1 3/4" doors are 16 gauge steel, while those for 1 3/8" doors are 18 gauge steel.

Available in all standard heights, in widths from 2' 0" to 8' 0", they feature a full 2" face with 1/2" return flanges. Hinge preparations are made at the factory to receive 1 1/2 pairs 4 1/2" x 4 1/2" template hinges for 1 3/4" doors and 1 pair 3 1/2" x 3 1/2" template hinges for 1 3/8" doors.

ASED PENINGS



or 18 gauge cased
ening frames avail-
le, assembled only,
3", 3 3/4", 4 3/4", 5 1/2"
d 5 3/4" profiles. Cor-
rs are neatly mitered.

RUST RESISTANT

Exposed surfaces are first chemically cleaned, then factory painted, under controlled conditions, with baked-on ZINC CHROMATE PRIMER, for maximum resistance to rust and corrosion. We recommend finish painting with oil base, spirit thinned, semi-gloss enamel.



AMWELD [®] "clean line"
HOLLOW METAL
DOORS AND FRAMES

600 PLANT STREET • NILES, OHIO

SELECTED LIST AND SOURCES OF PUBLICATIONS PERTAINING TO MODULAR PRACTICES:

MODULAR PRACTICE. See accompanying insert and return order card.

TEXTBOOKS:

MODULAR DRAFTING MANUAL. An introductory guide to preparation of modular working drawings. Principles and techniques are illustrated in its 40, 8½ x 11 pages. Available at \$1.00 per copy from the National Research Council of Canada, Division of Building Research, Ottawa, Canada, as Publication NRC No. 6344. (Contains Canadian Standard A 31—Code for Modular Coordination.)

VISUAL AIDS:

MODULAR SLIDE SERIES. Nineteen 2 x 2 colored slides prepared for group introduction to modular principles and drafting practices. Available from: Syracuse University Audio-Visual Center, Photo Laboratory, Collendale at Lancaster, Syracuse 10, New York at \$11.90 per set, including postage.

MODULAR PRODUCT IDENTIFICATION:

BUILDING PRODUCTS REGISTER, AIA. All dimensional building materials and products identified as to modular characteristics in column #9E. Major technical characteristics are listed for 1680 products in the 1962 edition tabulated in 427 pages, 8½ x 11. \$25 per copy from the American Institute of Architects, 1735 New York Avenue, N.W., Washington 6, D.C.

INFORMATIONAL BROCHURES:

SLIDE SERIES BROCHURE. Twelve-page pamphlet incorporating the illustrations included in the modular slide series. Prepared for individual study following such presentations: MBSA, 2029 K Street, N.W., Washington 6, D.C. Twenty-five cents each.

MODULAR MEASURE WORKS. Eight-page summary of implications of modular practices on architects, producers and builders. 25¢ each from MBSA, 2029 K Street, N.W., Washington 6, D.C.

THE FIVE FUNDAMENTALS OF MODULAR DRAFTING. Twelve-page graphic summary of modular drafting. Includes reference to design, preliminaries, layout, details, drafting conventions and specifications. 20¢ each from MBSA, 2029 K Street, N.W., Washington 6, D.C.

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STATUS OF MODULAR PRACTICES:

THE CURRENT STATUS OF MODULAR COORDINATION. Summary of conference conducted by the Building Research Institute. Includes review of modular standards, industry conversion, status of adoption, availability of modular products and educational activities incorporating modular coordination in the U.S. Thirty-two, 8½ x 11 pages. Available from the National Academy of Sciences—National Research Council, Washington 25, D.C., as Publication #782 at \$2.50 per copy.

REFERENCE WORKING DRAWINGS:

(Each set below contains eight selected sheets from the working drawings of modular dimensioned projects. All drawings have been photographically reduced to print on 11" x 17" sheets. These drawings are available from the Modular Building Standards Association, 2029 K Street, N.W., Washington 6, D.C. at printers cost of 25¢ per set, including postage.)

RESIDENCE: Brown & Wright, Associates, Architects. Built in Washington, D.C., this project is basically wood frame, post and beam, concrete slab construction.

FACTORY: Robert Berne, AIA, Denver, Colorado, Architect. A light-industry factory building constructed in Dyersburg, Tennessee. Steel frame, masonry cavity-wall construction.

SCHOOL: Junior High School by C. E. Silling and Associates with Perkins & Will associated on the project. The working drawings are at 1/16" scale. Set includes one sheet from the structural drawings.

OFFICE BUILDING: Eight selected sheets from the working drawings of a small telephone exchange building by Moulton & Van Keuren, Architects, Syracuse, N.Y.

MODULAR PERIODICALS:

THE MODULAR QUARTERLY. Published by the Modular Society Ltd., 22 Buckingham Street, London W.C.2, England, this publication is a useful continuing reference to current international standards activities, size range recommendations, and technical considerations of modular planning and production. Annual subscription \$6.00 per year, directly from the Modular Society.

RESIDENTIAL APPLICATIONS:

MODULAR PRACTICES IN RESIDENTIAL CONSTRUCTION. Sixteen-page reprint from March 1959 TECHNICAL BULLETIN includes illustration of the modular principles and the drafting technique as applied to custom, manufactured and speculative housing. MBSA, 2029 K Street, N.W., Washington 6, D.C. at 15¢ each.

SUPPLEMENTARY REFERENCES:

ARCHITECTURAL GRAPHIC STANDARDS. Ramsey and Sleeper, Fifth Edition, 1956. Pages 670-673 cover the principles of modular measure. Elsewhere in this edition the characteristics of various types of modular materials are tabulated or illustrated.

TIME-SAVER STANDARDS. F. W. Dodge Corporation, 119 West 40th Street, New York, N.Y. One chapter in revised edition to be released in 1963 is devoted to the principles of modular measure.

Note: Order publications from sources indicated. For those publications available from MBSA: Make check payable to the Modular Building Standards Association and mail to 2029 K Street, Washington 6, D.C.

*The first unified presentation
of an important new concept
in building*

MODULAR PRACTICE

Prepared by the Modular Building Standards Association

From the Foreword by the Advisory Committee . . .

"The 'schoolhouse' faces a crisis

. . . because of the immediate and extreme demand for educational facilities, the focus of this book is on the application of modular practice to the design and construction of the schoolhouse in its many forms — dormitories and classrooms, administrative areas and cafeterias, research buildings and gymnasias. The application of the modular system to all building types is implicit in the discussion of school buildings . . .

Advancing concepts of education and increasing sophistication of public taste call for facilities of higher quality and greater complexity . . . The temptation is strong to provide the required educational space at the sacrifice of quality, a policy which, if followed, would have serious, long-range detrimental effects . . .

The Committee believes that modular practice can contribute substantially to the upgrading of quality as well as to the reduction of costs of school buildings. In meeting both these requirements, modular practice will be of benefit to the school board faced with the task of providing, at the lowest possible cost, high quality schools which will be satisfactory to the taxpayer . . .

The taxpayer will benefit by receiving more value for his dollar. And the children, for whom schools are actually built, will benefit in terms of good, uncrowded accommodations, and an environment more conducive to learning . . .

Modular coordination of materials and components, with some standardization of sizes carefully worked out to retain design freedom for the architect, provides a positive means of producing more and better schools faster and more economically . . .

The architect can design more rapidly and can produce simpler, clearer working drawings in less time. The contractor . . . can prepare his bid more quickly, has less cutting, fitting, and patching and less waste of materials during the building process, and is aided in layout and erection by the inherent precision of modular materials and modular coordination . . .

Probably the chief obstacles to widespread acceptance of modular practice have been confusions resulting from a lack of a clear-cut explanation and demonstration of its techniques, and lack of documented proof of its benefits. *Modular Practice* should go far toward removing these obstacles . . .

The Committee believes that economy and improved quality in school buildings will be achieved through continued freedom of design on the part of the architectural profession; through the coordination of sizes of building materials, products, and components by the manufacturers; and through the understanding and acceptance of these concepts by the contractor in the construction of buildings . . .

The Committee also believes that *Modular Practice* presents the principles and techniques of modular design and construction in a way that will assist substantially in furthering progress toward the production of better, more economical schools, and in meeting one of the critical challenges posed by the population explosion and by our demand for a constantly higher level of human achievement."

MODULAR PRACTICE

The Schoolhouse and the Building Industry

PREPARED BY:
MODULAR BUILDING STANDARDS ASSOCIATION,
Washington, D. C.

PROJECT GRANT FROM:
EDUCATIONAL FACILITIES LABORATORIES, Inc.,
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The background . . .

A child's set of building blocks is made up of standard units — variations on the smallest piece in the set. If this were not so, whenever he attempted to build a tower, the child would be required to cut and fit each piece together.

On a far larger scale, the application of this principle to the sizing of building materials or components as multiples of a common size seems reasonable; yet the building industry, because of its complexity and scope of operation, has not yet achieved any large-scale degree of coordination in the sizing of the thousands of products involved. Where coordination has been worked out on the basis of a common unit size, or *module*, the amounts of time and labor saved have indicated that widespread use of the method would result in substantial benefits.

The ground covered . . .

Modular Practice presents the application of modular principles to the design and construction of educational facilities, in particular, and buildings in general. It stresses the idea that if all materials and components used in building were manufactured in coordinated sizes, and if modular principles were put into widespread use, the result in savings of time and money in all phases of the building process — design, bidding, and construction — would benefit the client in terms of lower cost, higher quality, and earlier occupancy.

This first unified presentation of the philosophy and application of modular principles will be of interest not only to those professionally involved in the building field, but particularly to schools of architecture, for use as a text in design and working-drawings courses.

The 120 photographs and drawings included are from actual working drawings of modular buildings and will be of great value to the reader or student in gaining an understanding of the application of modular practice in both architectural and engineering working drawings.

CONTENTS

The Elements of Modular Practice
Design
Development of Working Drawings
Plans
Elevations and Sections
Details
Structural, Mechanical, and Electrical
Modular Practice and the Contractor
Manufacturing for Modular
The Future
Definitions of Terms
Bibliography
Appendix: Background of Modular Practice.
Modular Coordination. A System for Modular Coordination.
The Modular Number Pattern. Modular Practice in
Minneapolis-St. Paul Area. Systems of Proportion.
Index.



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